EMPLOYMENT OF THE VISUALLY IMPAIRED INDIVIDUAL IN THE COMPUTER INDUSTRY

BARTLEY, GEORGETTA KATYE

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United States International University PH.D. 1981

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EMPLOYMENT OF THE VISUALLY IMPAIRED INDIVIDUAL IN THE COMPUTER INDUSTRY

A Dissertation

Presented to the

Graduate Faculty of the

School of Human Behavior

United States International University

In Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

in Human Behavior

---

by

Georgetta Katye Bartley

San Diego, 1981

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Chapter 1

INTRODUCTION

Almost thirty-six million Americans have physical, mental and emotional disabilities. Some of the most prevalent forms of disabling conditions are: blindness, deafness, cerebral palsy, multiple sclerosis, muscular dystrophy, polio, substantial epilepsy, mental retardation, neurological handicap, spinal cord injury, amputation, paralytic arthritis, recurring cardiac condition, cancer and leukemia, and others, including those disabilities occurring through old age (Social Planning and Evaluation Resource Manual, 1976).

American society has consciously and unconsciously placed obstacles in the paths of the physically handicapped individuals. An image of disabled people has been created that is perhaps the greatest personal barrier the disabled face. What is seen of disability is: the chrome and the leather, the guide dog, the hearing aid, the crutches, and the twisted bodies. Disability is not understood in American society and there is a fear to understand, and a fear to be connected with these people.

The use of the computer has shown great promise for expanding education and occupational opportunities for the handicapped individuals. The greatest obstacle facing these individuals today is obtaining viable employment for

self-support.

Since there is such a high level of technological development in America, it has become necessary as well as possible to tailor employment programs to varying disabilities. However, developing programs for so many specific situations will have to be as varied as the disabilities themselves. Consequently, it would be impossible to investigate all known types of handicaps in a single study. Thus, this study will be confined to the consideration of employment of the visually impaired in the computer industry.

Background of the Study

Historically, obtaining employment in competitive occupations has been a major problem for the visually impaired individual. The negative attitudes of business and other employers towards the capabilities of the blind have been cited as major impediments (Clark, 1975; Fletcher, 1970).

The problem of blindness is as old as society itself. The visually impaired individuals constitute a problem for society in the sense that their condition places them at a distinct disadvantage in fulfilling many of the roles expected of all persons. These roles include: being educated, finding productive employment, raising a family, and paying taxes.

The visually impaired individual, like everyone

else, wants to fulfill all those roles expected of them by society. There should be little difficulty in changing potentially dependent and unproductive individuals into potentially independent and productive ones. However, just as an individual's behaviors are not always socially beneficial in nature, there appears to be some aspects of social life which do not always have the well being of individuals as a primary goal (Hallenbeck, 1973).

One of the most dramatic technological developments of modern times has been the electronic computer. Computers and their associated components are now integral parts of virtually all important business, governmental, research and educational institutions (Ryan et al., 1978).

Computer-related employment is an emerging occupational enterprise which will influence the employment configuration of America for the remainder of the century. Already visually impaired individuals have been trained and equipment has been developed which will enable the visually impaired to compete for new jobs in this field. Independent terminals feeding back information whether in braille or audio are opening an array of jobs for those visually impaired individuals who have the vocational preparation and the capacity to fill them (Mager, 1977).

Much of the developmental work in designing braille translation of software, voice synthesis and specialized hardware has been accomplished by visually impaired professionals. Many technical schools have specialized

programs which concentrate on educating the visually impaired individual in a variety of activities used in the computer industry. Educational centers such as: The Golden West College in Huntington Beach, California and Baruch College Educational Computer Center, Manhattan, were established for this purpose.

In spite of the compelling evidence regarding the abilities of visually impaired individuals to contribute at the highest levels in education, research, and business, there is an appalling lack of opportunity for such qualified individuals both to learn the required skills and to compete for positions. This deficiency is found in both the private and public sectors (Ryan et al., 1978).

There is an accompanying lack of appreciation for the potentials of computer training among some of the professional service agencies working with the visually impaired. These agencies have taken a vocational approach by offering, through small private computer training firms, a basic set of computer operations and programming courses. The results of such endeavors have been disappointing when attempting to place graduates in jobs. Ryan et al. (1978) found that such weaknesses in programs lay in the criteria used to select students for training, the quality of instruction, the limited placement-oriented vocational objectives, the lack of proper facilities, and the need for broader educational development. Some of the real difficulties in placing the visually impaired as computer

professionals are surely aggravated by such educational problems. The weaknesses in such computer programmer training procedures, for the sighted individual, was discovered in the sighted community years ago, yet visually impaired service groups remain curiously ignorant (Ryan et al., 1978).

Problem Statement

The question set forth in this study is: Are the attitudes of employers towards the employment of the visually impaired individuals, in the computer industry, still a major impediment toward integration into the work force?

The critical problem of blindness, as compared to the problem of other physical and mental disabilities, is the failure of too many of those in control of the gateway to quality and opportunity in the sighted world, to comprehend the fact that blindness is basically a nuisance; that ignorance tragically misconceives blindness from its point of view, as a handicap (Freid, 1974). The visually impaired individual today is a normal individual with the education, the vocational or professional training, and the capacity for fulfillment of his or her talents, aspirations, and potential, rather than their frustration (Freid, 1974).

The total labor work force in San Diego County is 688,600, of which over 129,892 are handicapped. The disabled work force in San Diego is 27,085, of which 6,600

are visually impaired (State of California Department of Rehabilitation, 1980). This does not cover the total number of physically handicapped individuals, since the 1980 census excluded statistical employment data for the physically handicapped individuals (State of California Department of Rehabilitation, 1980).

It was reported in the Organization for Social and Technical Innovation, Inc (1971) that minimum efforts have been directed toward the employment of the visually impaired individual in meeting increasing automation requirements.

Purpose of the Study

The purpose of this study was concerned with ascertaining employment opportunities for the visually impaired individual specializing in computer science. This study will determine whether employers have positive or negative attitudes towards the employment of the visually impaired in the area of computer science.

Importance of the Study

The importance of the study will be to provide information relative to the employability of the visually impaired individual in computer centers.

The attitudinal data obtained will be made available to various local, state, and federal government organizations in determining employment policies, recruiting,

and selection procedures of the visually impaired.

Limitations

This study was limited to those organizations utilizing computer facilities, whose primary concern is in the capacity of computer programming, computer technician, computer analyst, and/or computer manufacturing. Further, this study was limited to the Southern California area.

In America where there is a high rate of unemployment and underemployment among the able-bodied, open employment prospects for the disabled are very poor. Special efforts should be made to create employment facilities for the disabled.

Definition of Terms

For the purposes of the study, the following definitions were employed:

Total blindness. The inability to perceive any light at all.

Light blindness. The ability to perceive the presence or absence of light; much like what a sighted person sees with his eyes closed.

Economic blindness. The absence of ability to do any kind of work, for which sight is essential. Less than 20/200 visual acuity in the better eye with possible correction, or an equally disabling loss of the visual field.

A person shall be considered legally blind whose central acuity does not exceed 20/200 in

> the better eye with correcting lenses or whose visual acuity is greater than 20/200, accompanied by a limitation in the field vision such that the widest diameter of the visual field subtends an angle of no greater than 20 degrees (Organization for Social and Technical Innovation, Inc., 1971: 121).

Positive attitudes. Those responses which reflect a high probability of hiring a visually impaired individual.

Negative attitudes. Those responses which do not reflect a probability of hiring a visually impaired individual.

Computer field. Anything which has to do with any branch or division of computer programming, computer technician, logic or circuit design, etc. Not to include the usage of computer data banks for inquiry only.

Computer industry. Companies who make something to sell that has to do with computers. This includes those who market computers as well as hardware and software.

Hardware. The mechanical, magnetic, and electronic design, structure, and devices of a computer.

Software. Any of the specially prepared routines designed to optimize the operation of a digital computer installation, including programmer aids such as assemblers, processors, and library routines. This also includes the complex programs such as operating systems that, to a large extent, manage the entire installation.

Chapter 2

REVIEW OF SELECTED LITERATURE

This chapter provides a review of the literature germane to the study. Thus far a systematic review of the literature has revealed no previous studies conducted on this specific subject. Although some individuals have addressed the subject speculatively, no indepth research regarding the employment of the visually impaired individual in the computer field has been done.

Since this is an action research concerned with the employment of the visually impaired individual in the computer field, the review of literature is centered around the following topics: attitudes in the labor market towards impairments (both physical and mental); characteristics of employer attitudes towards impairments (both physical and mental); employer attitudes towards specific impairments; and attitudes of the computer industry towards the visually impaired individual.

Attitudes in the Labor Market

When an individual responsible for hiring faces a decision to hire a certain applicant for a given job a range of consequent behaviors can be specified: hire, reject, or inaction. These evaluations are based upon the applicant's achievements or upon characteristics ascribed

to the applicant (Schroedel, 1976).

Further, since attitudes alone may not explain employer hiring decisions, economic research and theory are brought together through various ventures in an attempt to understand the operation of the general labor market. Special attention focuses on potential determinants of the productivity levels of workers and particularly on those determinants that may form indicators of productivity.

Attitudes in the Labor Market Towards Impairments

Since 1948 nearly fifty research studies on employer attitudes toward disabled workers have led to a variety of interrelated as well as conflicting conclusions. Any misinterpretation of results from attitude research, when it occurs, can be traced, in part, to the incorrect specification of conceptual or operational definitions of attitudes. How attitudes are conceptually defined can vary from the ways they are measured by scales. A standard conceptual definition is that attitudes comprise feelings, beliefs, and tendencies to behavior or action in relation to the object of the attitude (Kretch, Crutchfield & Ballachey, 1962). However, it can be pointed out that many attitude measures result in scores that do not distinguish between these three components of an attitude. Conditions, such as the absence or presence of experience with the target stimulus of an attitude, can affect both the positive or negative direction as well as the degree

or intensity of commitment to the attitude. For these reasons, the social psychological responses to disability can be appraised as they occur on a range of attitudinal reactions (Schroedel, 1978).

At the risk of oversimplification, for the purposes of this study, thoughts and feelings based upon sustained experience with an impairment, disability, and/or disabled persons form attitudes, while thoughts and feelings without such experience form stereotypes. Prejudices, as forms of attitude, are also found along with other distinctions within this range. The object of this study is to construct a typology that relates various forms of attitudes to corresponding forms of behaviors in the employment setting.

The Range of Attitude: Theory and Empirical Review

Jordan (1968, 1970, 1971) developed a theoretical approach that attitude behaviors are composed of six a priori facets, ranging from social stereotypes to attitudes based upon personal action or experience. Jordan used the Gutman Hierarchy Theory. This theory suggested that attitudinal facets are aligned along a stratified line stretching from the impersonal to the personal identification of the object causing the attitudinal response. Jordan extended this construct to develop the Attitude-Behaviors (A-B) Scale (vide infra).

Poulos (1970) tested the deafness form of the A-B

Scale with five samples of subjects, three of which were not experienced and two of which were experienced with deaf persons. As given in Appendix A, Table 1, A-B Scale scores for each of these test groups are indicated at each of the six facets of the attitude range by positive or negative signs. Employers, regular school teachers, and mothers of hearing children, lacking experience with deaf persons, scored positively on every facet of the A-B Scale. Their personal feelings and actions were perceived, rather than actual. A-B Scale scores for experienced subject--teachers of deaf pupils and mothers of deaf children--were positive on all facets except level VI where negative attitudes were obtained.

A major implication of Appendix A, Table 1, is that persons lacking experience with deaf people, in effect, have positive stereotypes as measured. However, experienced subjects have positive stereotypes when attitudes are measured by criteria other than personal action or contact with deaf persons. When these experienced subjects evaluate their interactions with disabled persons, negative attitudes as measured by the A-B Scale result. Appendix A, Table 1 also illustrates a common problem in research on attitudes toward impairments: scales can gloss over positive stereotypes without detecting deeper negative attitudes towards a target or object. Experience with disabled persons was suggested as a means to distinguish between attitudes and stereotypes. Because of their importance

when held by significant others--professionals or employers--negative attitudes need to be identified separately from less influential positive stereotypes.

Other research studies indicate a wide range of attitudes among employers considering job applicants with disabilities. The major forms of these attitudes are actually prejudice, experienced based attitudes, and stereotypes. Empirical justification for these classifications are reviewed as follows.

Prejudice

Personnel managers consistently preferred nondisabled over disabled job candidates and primarily judged, first, work competence, then, sociability to be significant criteria in their evaluations (Rikard, Triandis & Patterson, 1968). The authors concluded that the personnel managers' systematic rejection of qualified disabled over equally-qualified nondisabled job seekers is discrimination due to employer prejudice. Allport (1954:8) defined prejudice as:

> an avertive or hostile attitude toward a person who belongs to a group, simply because he belongs to that group, and is therefore presumed to have objectionable qualities ascribed to that group.

On the basis of Allport's definition, prejudice is viewed as a form of rejective stereotyping due to lack of prior or actual experience with the object of prejudice.

Minority Parallel

As indicated by theory (Myrdal, 1944) and by survey research (Blau & Duncan, 1967; Coleman, 1966; Jencks, 1972), American black people suffer from a continuance across generations of low levels of the class of origin (parental socioeconomic status) that affect the class of destination (the consequent level of education, employment preparation, and occupational attainment). One explanation of this continued pattern is known as the vicious cycle: social prejudice depresses minority achievement and this underachievement serves to reinforce social prejudice through a self-fulfilling prophecy.

This parallel assumes a social response to both racial minorities and individuals with disabilities. The minority parallel associated with the vicious cycle will now be explored as it is germane to the practices and policies influencing participation in the work force by individuals with disabilities.

The concept of a minority parallel linking attitudes toward groups of impaired individuals to prejudice against social groups has been a consistent theme within the literature on social psychology and disability for the last thirty years (Barker et al., 1953; Chevigny & Braverman, 1950; Eiseman, 1972; Harth, 1971; Lewin, 1948; Noonan, Barry & Davis, 1970; Yuker, 1965).

Social contact between individuals with or without disabilities can intensify their attitudes towards either

positive or negative directions. Lack of social contact can breed stereotypes. Some forms of these stereotypes can give birth to the minority parallel through a process termed disinvolvement: "The more disinvolved the observer, the greater the tendency to fuse attitudes towards minorities with attitudes towards disabled groups" (Bobrove, 1964:122). As previously discussed, when persons are not directly involved with persons with a disability their tendency to form such attitudes may remain latent. When encountering a stimulus of disability, the inexperienced actor may stigmatize persons who are impaired in the same manner as outgroups, for example, social minorities are stigmatized. The minority parallel thus generates potential for understanding the process of forming attitudes toward individuals with disabilities.

The assumption that attitudes toward racial minorities are similar to attitudes toward impairment has been tested by several researchers. Investigations into authoritarianism upon anti-Semitism by Adorno et al. in 1950, was an early influence on some of these studies. In a study of mental hospital policies and practices, Gilbert and Levinson (1956) reported that an authoritarian staff significantly had "custodial" rather than "humanistic" attitudes towards mental illness. Anti-minority attitudes and authoritarianism were significantly correlated with attitudes towards blindness (Cowen, Underberg & Verrillo, 1958) and with deafness (Cowen et al., 1967). However,

subjects in both samples were college students whose prior experience with persons with either sensory disability or ethnic status was not determined. In this given situation, Bobrove's (1964) observation of disinvolvement may mean that attitudes as measured were merged by students on a basis other than by pragmatic criteria. Among employers, Baker (1974) determined that executives have negative attitudes against hiring blind persons and that aspects of the executive personality correlate with authoritarianism; however, the latter may not be the cause of the former.

Stereotypes

Data from several studies indicated that employer experience with actually hiring employees with impairments ranged between 9 and 81 percent and averaged about 32 percent among companies sampled (see Table 4, Appendix A). This broad width in the range of employer experience is perhaps due to a combination of such conditions as: (1) the types of jobs and industries as well as the degree of urbanization in a given area as sampled, and (2) the probability that persons with some type of impairments more frequently participate in the labor market than do persons with other types of impairments (Schroedel & Jacobsen, 1978). In other words, this lack of experience among most employers can consequently create stereotypic attitudes. These attitudes, when compounded by employer uncertainties about risk taking in the labor market in general, can result in highly ambivalent stereotypes. Another possible

form of stereotyping occurs when an absence of experience is combined with altruistic halo effects. In such instances the following positive stereotypes may be created:

Ambivalent stereotypes. Black (1970) as well as Whigham and Mattson (1969) found employers to have positives attitudes towards persons with impairments but not necessarily a willingness to hire. This discrepancy between attitudes and behavior could, in part, be explained by inadequate research methodologies in these two studies. Another explanation may be that employers are genuinely uncertain in their attitudes and therefore are unpredictable or waver in their behaviors toward applicants with disabilities. Schletzer et al. (1961) reported that while 91 percent of personnel managers stated they were good friends of some physically disabled persons, only 32 percent felt that they understood handicapped persons.

False positive stereotypes. Margolin (1961) reported that compared to other employees, 57 percent of employees who were ex-mental patients received favorable ratings from employers. The authors also noted, some of the employers have become so ego-involved with the welfare and progress of the member employee that they have been willing to accept less than desirable work performance.

Moderately positive attitudes, as measured by Form O of the Attitude Toward Disabled Persons (ATDF) Scale

(Yuker, Block & Young, 1966) were found among a California sample of fifty-nine personnel managers tested by Curran (1976). Two of the respondents had negative ATDP Scale scores. The mean score of Curran's sample was one standard deviation more positive than normative scores among nondisabled adults on the same scale reported by the Yuker group (1966). Block (1974), Dickie (1967), and Jordan and Cessna (1967) reported on studies which showed no significant differences in ATDP-O Scale scores obtained between managers, occupational professionsals experienced with disabled persons, regular school teachers, or general labor force workers without such experience. Item by item analyses of attitude scales by the Schletzer group (1961) and Curran (1976) raised questions about the concurrent validity of some results of these studies. Nondisabled respondents inexperienced with disability and with no commitment other than participating in attitudinal testing, reply to attitudes towards impairment scales in a manner influenced by both halo and central tendency effects (McDaniels, 1969, Schroedel & Schiff, 1972; Schroedel, 1976), resulting in favorable or positive attitudes that are, in essence, falsely positive stereotypes towards either impairments or disabled persons. These testing effects are not infrequent in social psychological research. Most attitude item scores in the Schletzer et al. (1961) study were frequently mild rather than strongly favorable; extreme judgments were avoided, suggesting a central

tendency response pattern. Most item replies in Curran's (1976) data were frequently strongly positive, and when combined with the set of aforementioned conditions, reflected a halo effect. Experience with disability was not ascertained in Curran's investigation. Assuming such experience was limited and knowing that the only commitment faced by these personnel managers was to respond to and mail back the questionnaire, the relatively high favorable ATDP Scale score in this sample could also be considered a falsely positive stereotype toward disabled persons. It is also possible that these positive replies may reflect an awareness of affirmative action laws.

The lack of significant variation in ATDP-O scores across occupational groups studied by Dickie (1967) and Jordan and Cessna (1967) may stem from several research conditions. One is that occupational title, even among rehabilitation and special education professionals, at best indirectly assesses the quality of experience with persons with disabilities needed to vary attitudes. Another consideration may be that elements as measured by the ATDP-O Scale do not capture variance in attitudes due to differential experiences. Another possibility is that there are no significant differences in such attitudes due to variations in subjects' occupations.

Experienced-Based Attitudes

Various studies have assessed how hiring experiences are associated with managerial attitudes. Companies

with mentally retarded workers on their payroll had significantly more positive attitudes towards this disability group than companies without such workers (Bolanovich & Rasmussen, 1968). In contrast, Hartlage and Taraba (1971) found that employers with unknown records of hiring persons with impairments were as receptive to doing so as companies with known hiring records. Both the attitude measures and sampling procedures used in both studies could bear upon their different results. Two researchers (Bolanovich & Rasmussen, 1968; Laitmon, 1973) did find less positive attitudes among employers with terminated disabled workers than employers with retained disabled employers. Both studies had small samples of such employers, which limits further analysis.

A Typology of Attitude-Behavior

Differences in experience with the object of an attitude were suggested as a pivotal condition for the diversification of attitudes ranging from prejudice, through stereotypes, to acceptance. An acid test for attitudes is their prediction of behavior. Ajzen and Fishbein (1977) identified a key criteria shared by both attitudes and behaviors: a target (object) at which an action is directed. In a review of 109 studies, these authors found that the magnitude of correlation between attitudes and behaviors was consistently related to the magnitude of correspondence between action and target elements of these

attitudes and behaviors. Consequently, it is more than an assumption that increasing understanding of attitudes and behavior can result from increased understanding of the elements they share. A logical extension when establishing a range of attitudes is to conceptually construct a range of corresponding behaviors.

How employers treat statuses is central to the relevancy of an attitudes-behaviors typology to labor market conditions. Individuals at birth indigenously possess certain ascribed statuses, such as race, sex, or parental socioeconomic status. Other social statuses are achieved, for example, education and occupational attainment. It is uncertain as to whether the disabling consequences of impairments, determined by the age at onset of the impairment and/or the degree or severity of the disability, are treated as either ascribed or achieved statuses. How these consequences are communicated as being either modifiable or unmodifiable may influence their interpretation by employers.

The range of employer attitudes can be linked to corresponding forms of hiring behaviors in accordance with how types of social statuses are evaluated by employers. Prejudice occurs when managers discriminate against applicants by weighing only ascribed, unmodifiable, statuses such as race, sex, or impairments rather than considering job-specific criteria. When employers weigh achieved, modifiable, statuses such as education, work history, and

find the applicant unqualified on the basis of job-specific criteria then rejection is reasonably justified. When ambivalent stereotypes, due to uncertainty or inability to judge an impairment as either a modifiable or an unmodifiable condition, create inaction, no hiring decision may be made. When an applicant is hired on the basis of achievement alone, the corresponding attitudes are acceptive. This typology suggests that positive experiences with job applicants who are disabled can help employers make such decisions. Hiring based on a lack of such experiences may stem from false positive stereotypes reinforced by halo effects.

Additional research bears upon the range of behaviors in this construct. As indicated in Appendix A, Table 4, among eight samples of employers, an average of 60 percent expressed willingness to hire workers with impairments, while actually only 32 percent had done so. This table also illustrates that the intention to hire workers with impairments is generally greater with those employers who have had previous experience with disabled workers. Job applicants with various disabilities, these studies reveal, can experience wide discrepancies in intended and actual hiring patterns by employers. Also suggested was that hiring intentions may result in either inaction, rejection, or discrimination, depending upon the respective attitudes that underlie willingness to hire.

Economics: Theory Review

Employment decisions, by both employers and job applicants, take place within the context of labor markets and represent an exchange between buyer and supplier of labor. In looking at the hiring behavior of employers regarding individuals with disabilities, it is essential to consider the fundamental workings of labor markets. It is through these considerations that identification can be made of both the way in and the points at which attitudes might influence employment levels (Bolanovich & Rasmussen, 1968).

Exchanges in the labor market reflect the input of both potential workers and potential employers. Attitudes can affect decisions to supply labor as well as the nature of the demand for labor.

This segment of the review of the literature will address two of the three classes of explanations Fletcher (1970) suggested might be brought to bear on the comparison of employment levels of persons with disabilities and the general population. These two classes, which are treated together here because of their close relationship, are: (1) productivity related explanations and (2) explanations related to voluntary decisions to supply labor or not.

Labor Market

Labor markets consist of buyers and sellers of labor and function to allocate human resources within the

economy. Through the labor market, trades are made between particular employers and particular job searchers by which both parties attempt to optimize their gain in the exchange. Participation in the labor market, both by employers and by job hunters, depends on a variety of circumstances that influence a buyer's or seller's relationships with the labor market.

There are markets for different types and levels of skills, in different industries, and in different geographic locations (Heneman & Yoder, 1965).

The Demand for Labor

From the perspective of the employer, the decision to enter the labor market is based on a need for workers to answer production requirements. The demand for labor is called a derived demand because it stems from a demand for the product or service that the employer provides. If no such demand exists, there will be no need to enter the labor market to hire workers (Bowen, 1969). In attempting to meet production of service needs, the demand for labor will be shaped in part by the productivity of labor. The more productive a worker is within a given wage range, the greater the employer's relative gain will be in hiring. The employer is concerned with what is termed the marginal productivity of a potential worker. Marginal productivity is defined by Schroedel and Jacobson (1978) as the change in output resulting from a unit change in labor when all other factors in the production process are held constant.

Within a labor market the employer will essentially be faced wtih a distribution of marginal productivities, as different job seekers will have different levels of productivity. Through recruitment and screening, the employer will attempt to find the most productive workers, or those workers who can contribute the most revenue beyond cost (Heneman & Yoder, 1965).

The Supply of Labor

Looking at the supply side of the labor market, individuals make a choice whether or not they will participate in the labor market, whether they will supply labor within the market or engage in nonmarket activity. If people choose to participate in market activity, that is to supply labor, they also may choose the number, given institutional constraints, of hours of labor they are willing to supply. Many factors can influence these choices, which can be traced to a person's basic tastes, wages offered, present family income, and other circumstances (Schroedel & Jacobson, 1978).

The relationship between productivity and wages is basic here, as the expectation is that increased productivity and wages will act as inducements to enter into market activity (Bowen & Finegan, 1969). For persons with disabilities, financial disincentives, such as transfer payments and basic costs of labor market participation (e.g., higher transportation cost, attendant care, or additional prosthetic needs), enter into opportunity cost calculation

and can act as disincentives to labor force participation. Disincentives can raise the wage rate a person will require in order to make labor force participation worthwhile (Bowen & Finegan, 1969).

Uncertainty and the Lack of Perfect Knowledge

In theory, the ideal market is one where all participants have complete knowledge of all other buyers and sellers and of the rate of exchange for a given product in the market. This inclusive knowledge would permit the market to operate more efficiently. In the actual labor market, buyers and sellers of labor do not have exhaustive knowledge of all of the exchange conditions. Buyers and sellers (employers and job hunters) may not be fully aware of each other. Employers may be aware of a range of job seekers and job searchers likewise may be aware of a range of employment possibilities (Mager, 1977).

There is no certainty that this range of familiarity is representative of the total range of possibilities for either the employer or the job hunter. Additionally, an employer cannot be completely confident of the value of the applicant's labor and the applicant is necessarily uncertain of the full circumstances of the job before working on it. Employers, then, take risks in hiring employees since they are unable to have certain knowledge of a person's productivity in the work setting (Levitan, Mangum & Marshall, 1972).

Employers attempt to reduce uncertainty by making use of proxies or indicators of productivity potential, such as level of education, work history, and skill training, in screening applicants. Other subjective factors, such as demeanor, appearances, or social biases may affect employer estimates of job applicants' productivity. This is a clear instance where the demand for the labor of persons with disabilities can be reduced by social psychological patterns (Fechter & Thorpe, 1977). It may be assumed that a person will, on the job, have an actual productivity level. This level is unknown prior to hiring, but is evaluated nonetheless. The processes and accuracy of productivity evaluations of persons with disabilities are critical concerns of this study.

The employer is also unable to be familiar with all of the persons who might possibly fill a position. In this circumstance the employer makes a decision to hire based upon the idea that the cost of further searching is unlikely to yield a job applicant with an appreciably greater value to the firm. Thus, when potential workers with disabilities are not visible to an employer, there will be little opportunity to consider them as employees (Bradshaw, 1973).

A lack of knowledge of effective and efficient job-search methods, increased costs of various job-search activities due to the disability and expectation of negative employer attitudes can all serve to reduce search

activity, and thus the supply of labor. This can lead, in effect, to a voluntary restriction of a person's range of employment opportunities and to reduce levels of employment. Decisions to supply labor and to search for opportunities to supply labor can have attitudinal correlates (Bowen & Finegan, 1969). As noted, expectations of negative attitudes in hiring and associated unfavorable treatment and lack of advancement can induce a person to withdraw from the market. Unfavorable attitudes can also raise the cost of job search and have similar results.

Economics: Empirical Review

Essentially, the production level of the job hunter has been nominated as a critical factor both in the employer's hiring decision and in the individual's decision to participate in the labor force. For the employer, greater absolute productivity means greater efficiency. For the supplier of labor, increased productivity can mean increased income (pecuniary and nonpecuniary) and can provide greater incentive for participating in the labor market (Schroedel & Jacobsen, 1978).

Proxies of Productivity

Researchers attempting to measure absolute levels of productivity have made use of proxies, such as education level or training experiences, as assumed indicators of productivity. Looking first at labor force participation rates, Bowen and Finegan (1969), reporting on data

from the 1960 census, noted that the level of educational attainment among men is positively associated with labor force participation when the effect of age, marital status, race, and other nonwage incomes are controlled. Further examination of the impact of education upon employment status led to the suggestive finding that the higher the quality of education obtained, the higher the participation rates of prime-age males (Bowen & Finegan, 1969).

Bowen and Finegan (1969) also examined the notion that the amount of learning on a job will be positively associated with productivity levels and consequently with participation rates.

The effect of education as a productivity proxy is also seen in whether or not someone has a job once in the labor force. Levitan, Mangum and Marshall (1972) reported on U.S. Bureau of Labor Statistics data that indicate a generally consistent relationship between increased education attainment and reduced unemployment rates across all age levels. Allen and Gutteridge (1976) noted the non-pecuniary benefits of increased education. They reported on research pointing to greater satisfaction with promotional opportunities among a group of employed persons with bachelor's degrees when compared to their former classmates at a two-year college. Mincer (1962) and Andrisani (1977) reported on data providing support for the belief that on-the-job training experiences increase worker productivity and consequent returns to the worker.

According to the research reviewed by Becker (1964), the returns to education are consistent across levels of education and with school rank and measured IQ controlled.

Alternates to Proxies

The exemplary review of empirical literature relating educational attainment and training experiences to labor force participation variables, lends support to the marginal productivity theory of wages as outlined earlier. However, alternate explanations of these results are available. Berg (1971) challenged the essential relationship between education and productivity, arguing, in part, that educational requirements serve to weaken the competitive forces of the labor market by acting as artificial barriers to jobs. Other factors of a structural nature that relate to education attainment, for example, may be critical for occupational attainment, with educational requirements serving to bar access of those less favorably situated in society. Social biases regarding the value of education in general may also interfere with more objective assessments of absolute productivity levels (Schroedel & Jacobsen, 1978). Fechter and Thorpe (1977) in their inquiry into labor market discrimination against workers with disabilities cited the essential difficulties of distinguishing among voluntary labor supply decisions, productivity levels, and discrimination when looking at disparate labor market achievements.

A mediating factor for the employer is the

recruitment effort, and for the potential wage earner, the job search. The lack of perfect knowledge of these labor market participants will restrict their exchanges. For the job searcher, research has indicated that some sources of job leads are more effective than others, with those from friends and relatives and direct application to a company being most effective (Jaffe, Day & Adam, 1964; Sheppard & Belitsky, 1966; Jones & Azrin, 1973). Granovetter (1974) reported on research indicating that jobs found through friends and acquaintances tend to be higher paying and more satisfying to the worker. Notwithstanding, job hunters do not all follow the same patterns of search (Bradshaw, 1973) and different outcomes may be anticipated. These different patterns of search may reflect a number of factors including relative access to an awareness of efficient search methods.

In general, efforts to put employers and potential workers with disabilities into contact with each other can further be affected by attitudes. Recruitment efforts can be restricted by unfavorable attitudes of employers toward persons with disabilities or their representatives. Job-search efforts by the supplier of labor can be made more costly in terms of dollars, time, and emotional investments by negative attitudes towards disabilities. These may be important factors in the dynamics of labor force participation of persons with disabilities.

Characteristics of Employers' Attitudes Toward Impairments

Employers are not a homogeneous group. As individuals they can be characterized by their position in a company, their age and education, and by aspects of their career patterns in personnel and industrial management.

Level of management was observed by Nichols (1970) to be an important source of variations in employer response to hiring blind workers. Personnel managers and first-line supervisors share numerous similar attitudes toward disabled workers, but do differ in respect to perceived economic costs and the role of union regulations (Schletzer et al., 1961). A national sample of personnel managers was more aware and had more receptive hiring attitudes toward retarded persons compared to a St. Louis sample of general managers (Bolanovich & Rasmussen, 1968).

Research studies indicate mixed support for prospects of linkages between an employer's age or education with his or her attitudes toward job hunters with impairments. Among personnel managers those who were younger and better educated compared to those who were older and less educated were more receptive towards hiring mentally retarded workers (Phelps, 1965). Younger school administrators tend to be more positive in attitudes towards teacher applicants with impairments than were older administrators (Ayer, 1970). Correlations between chronological age of employers and receptivity to hiring mentally

retarded persons range between 0.12 (Hartlage, 1965) and -0.23 (Cohen, 1963). A study by the Schletzer group (1961) found that age and education among a national sample of employers were not significantly related to attitudes toward workers with disabilities.

The range in chronological age and level of education among personnel managers, as sampled by Phelps (1965), were greater than the corresponding ranges for the same variables among managers sampled by the Schletzer group (1961). The former study found significant patterns between these demographic characteristics and attitudes while the latter study did not. Since the same attitude scale was used in both investigations, there is some support for concluding that invariance in age and education can reduce probabilities of correlating these variables to attitudes toward workers with disabilities. Another point is that education appears to be more important than age in influencing attitudes.

Additionally, much of the literature focused in the field of personnel relations was significantly associated with attitudes among personnel managers in the study by Phelps (1961). Since respondent's age as well as education can covary with these above variables, the aforementioned methodological conditions apply here as well.

Seven studies have assessed how size of firm, as measured by magnitude of work force, may relate to employer attitudes toward applicants with disabilities and/or

impairments. Positive associations between these variables were reported by Baxt (1959), Hartlage (1966), Phelps (1965), and Reeder (1958), but not by Bolanovich and Rasmussen (1968), Schletzer et al. (1961), or Wolfe (1961). In sum, these studies indicate that larger firms were more receptive than smaller firms to hiring disabled workers. Bolanovich and Rasmussen (1968), for example, reported an overlap between level of company contact and size of firm: respondents were top-level executives in smaller firms and personnel managers in large firms. This covariance was not separated in treating employer attitudes.

Research studies on the relationships between employer characteristics and attitudes toward workers with disabilities collectively suggest that multivariate, rather than bivariate, treatments are needed to establish more consistent associations between these variables. Care in sampling as well as in specification of each variable is also needed to develop more interpretable results. The studies reviewed, however, do produce some empirical support for observation how variations in employer traits can relate to their reactions to job hunters with disabilities.

Employer Attitudes Toward Specific Impairments

In further exploring productivity evaluations, it is useful to examine existing research regarding how employers look at disability. In this context perspective is gained by first examining the attitudinal response of

the general society to persons with impairments. In measuring these attitudes, researchers have used various approaches. Yuker, Block and Young (1966) stimulated response to impairment through a generalized referent such as the disabled. Others, such as Jordan (1968), and Siller et al. (1967a, 1967b) measured attitudes by reference to specific impairments.

An example of research investigating responses to impairments is seen in the work of Tringo (1970). Following conceptions of relative preferences for different racial groups, Tringo explored the notion that not only do people make distinctions among types of impairments, but that a hierarchy of preference exists with respect to these specific impairments. For this research, an adapted social distance scale (Disability Social Distance Scale) was developed and 455 students were tested. Appendix A, Table 2, lists the rank ordering of social distance scores that emerged for 21 impairments.

The present points of interest emerging from this study are that, as expected, impairment was responded to in terms of specific types rather than in a generalized manner and there was an established hierarchy of preference. Correlation coefficients on the rating hierarchies were very strong. The samples were divided into groups showing the greatest differences in absolute ratings and the correlation between the rank ordering was r=.95. Similarly, males and females tended to assign different

absolute scale values but the rank ordering across the sexes correlated at r=.98. This study does indicate, then, that impairment is not perceived as generalized, although some degree of distance feelings would seem to be generalized. It is also possible that low social distance rating may be influenced by tendencies to give more socially desirable responses. This may contribute to the relatively positive mean scores given to all twenty-one impairment types in Table 2 (Appendix A).

It is instructive also to note factors associated with progressive distance ratings in moving from the impairment respondents were most comfortable with (ulcer) to the impairment they felt the most distance from (mental illness). Elements of familiarity, visibility, and predictability of action seem to have a steady effect on participant ratings. Shears and Jensena (1969) suggested six dimensions that interact in a composite structure of perceptions of acceptability of impairments. These are: (1) visibility; (2) interference of communication; (3) social stigma; (4) reversability of impairment prognosis; (5) extent of incapacity; and (6) difficulty imposed on daily living. These tendencies can be particularly relevant when considering the roles of uncertainty and stereotypes in productivity evaluations and hiring investment decisions.

The Tringo (1970) study reported data on students with the likely expectation that these findings would be

repeated on research with other segments of the population. The particular concern here is with employers. In this review of the literature, Yuker (1977) concluded that, with some exceptions, acceptance of various impairments by employers followed patterns similar to those of the general public. Those with ulcer, diabetes, or loss of one limb are most acceptable, while those with mental retardation or severe epilepsy are least acceptable. Employers differed from the general population in that they resist hiring deaf or blind persons, which perhaps can represent an increased concern with productive output in the interaction with the work environment. Appendix Tables 3, 4, and 5 suggest a hierarchy of disability preferences among employers. Comparisons between these tables and Appendix Table 2 indicate some similarities and dissimilarities among disability rankings. These differences may stem from the possibility of the existence of two sets of disability preferences, one applicable to social settings and the other applicable to job settings.

Yuker's (1977) review indicated that the market stimulus value of impairment indices can vary in their effects on productivity evaluations and that some types of impairments will be viewed more negatively than others. To some degree, these distinctions will be made on the basis of beliefs or reactions to the given impairment stimuli. These beliefs may be based on a variety of factors, including somatopsychological responses, stereotypes,

and levels of uncertainty regarding given impairments.

Employers seem to consistently react to interactions between type of impairment and the type of job involved. Williams (1972) reported on a study of Minnesota employers showing general interactions between type of job and type of impairment. For ten types of impairments, employers were asked whether they would reject applicants for each of four jobs: production, management, clerical, and sales. Rejection rates ranged between 17.2 percent and 96.2 percent. Clear differences emerge both by impairment and by type of job. For instance, 72.5 percent of employers would reject persons with epilepsy from production work while only 43.0 percent would reject persons with epilepsy from clerical work. (For more detail on impairment and job interactions, see Appendix A, Table 5.)

Employer responses to impairments also appear to vary according to work traits. Hartlage, Roland and Taraba (1971) found differences in employer ratings of five impairments (psychiatric, delinquents, epileptic, retarded, and amputee). (See Appendix A, Table 6.)

Notably, the person with an amputation is rated more favorably than the nonimpaired individual. For the employer, amputation as an impairment is relatively free of the uncertainties of the less predictable or understood impairments such as emotional disorders. This situation may permit a positive stereotype of the disabled individual

as a striver who will be grateful for an opportunity to rise to the surface.

Other factors seem also to affect employer responses to disability. Several studies (Grace, 1970; Schletzer et al., 1961; Wilson & Richards, 1975) indicated that employers feel that in many cases there is less flexibility in the kind of jobs individuals with disabilities could do. Williams (1972) noted perceptions of increasing supervisory costs in employing disabled workers. Bolanovich and Rasmussen (1968) reported employer concerns about the time it would take to break in mentally retarded workers. Lee et al. (1957) identified concerns for increased insurance related costs in the hiring of cardiac patients.

Various studies report on a variety of employer response patterns relating to individuals with work disabilities. Consistently, some line of logic can be drawn from perceptions of the disability to concerns in or ratings on hiring. In each case the line of logic can be tied to productivity concerns of the employer, if productivity is understood in terms of relative overall gain to the employer in hiring a worker.

Nonetheless, it may be seen that employers tend to draw these connections too strongly and that the implications of the disability for productivity are overstated. Research (Bolanovich & Rasmussen, 1968) indicates that experience in hiring can lead to more favorable attitudes

towards additional hiring. Nagi, McBroom, and Collette (1972) also cited the same type of favorable attitudes. The rehiring of former employees who became disabled represents a situation where employers will be more certain of productive skills and the effects of disability on employer hiring behavior are less in the rehiring situation. Research by Jaffe, Day, and Adams (1964) indicated that rehired workers do better in terms of pay and promotions than other labor market participants with disabling impairments.

However, the modifiability and the individuality of the disabling situation indicate that the disability is best understood as a signal of productivity, which can be adjusted. A lack of awareness of such possibilities can lead to a relative certainty of an individual's inability to perform on a job. A limited awareness of modification possibilities can lead to an uncertainty as to how to proceed and the extent of implied costs in hiring. Such costs can, of course, reduce the marginal value of hiring a given job searcher. This point is to enhance opportunities so that productivity signals overcome disability indices.

Attitude of Computer Industry Towards the Visually Impaired Individual

The employer attitude towards disabled individuals traditionally has been considered the greatest obstacle faced by visually impaired individuals and their counselors and teachers (Bowe, 1978). The evidence accumulated by a

large number of research studies suggested that this is correct. The problem, as described, has been that employers tend to see, and judge disabled applicants more on the basis of disability than ability (Bowe, 1978). Eiseman (1972) did a survey in Los Angeles, California which revealed that employer attitudes towards visually impaired individuals were less favorable than towards any other prospective group of applicants surveyed, including elderly individuals, minority-group members, ex-convicts, and student radicals. A study by Williams (1972) found that a full 50 percent of the employers surveyed would not consider any visually impaired or mentally disabled individuals for any job. Gildea (1970) reported in virtually all his research that a large proportion of employers, including those in the computer industry, were unwilling to employ visually impaired individuals. Almost invariably, employers are given no information about the individuals to be rated other than basic demographic data and even this is usually restricted to a single parameter: type of disability.

Employers tend to perceive visually impaired individuals as more expensive to hire, train, place, and provide supportive services for than other workers. It is encouraging to note that when employers who have hired visually impaired individuals are compared to those who have not, the attitudes of the former are dramatically more favorable (Ward, 1973).

Negative attitudes among employers influence employment of the visually impaired individual in more than mere hiring. Also affected are the level of the job in which the individual is placed, the compensation awarded, the opportunities for advancement, and the likelihood of being among the first fired in an economic downturn. Employers indicating a willingness to hire visually impaired individuals present a substantially greater resistance to promoting them.

Top Managers

The attitude of top personnel officers has been, and continues to be, one of caution, of reserve, and of suspicion as to the motives of anyone recommending a visually impaired individual for employment in a data processing operation (Nichols, 1970).

It is unfortunate that the image of the visually impaired individual as one who can only make brooms, cane chairs, sell pencils on the street, or, at best do routine transcription work in an office has clearly not been eliminated (Adams, 1974).

With this kind of attitude at the top level of management, it is most difficult for the visually impaired individual even to get into the personnel department to demonstrate their abilities.

Nichols (1970) also stated that once into the personnel department and once they are convinced that they have a potential candidate, the next problem is with the

middle management.

Middle Management

First there is skepticism as to whether a visually impaired individual can do the job at all. Next, they just can not see how a visually impaired individual can possibly perform as well as a sighted individual. Then there is concern about the high risk of failure. In computer operations the work load is heavy and everyone must carry his own share. The review of the literature revealed that the attitude of middle management, when considering a visually impaired employee, can not help but feel that there is great risk of failure with such an individual. They look at the six months of training that is involved, picture a failure, and see another six months training a replacement: a loss of a year in the operation (Alford, 1969).

Line Management

The thinking of line management focuses on practical day-to-day operations. Nichols (1970) advocated that companies employing visually impaired electronic data processing workers encourage public media exposure: (1) to encourage other firms to hire similarly, and (2) to benefit the public image of those companies hiring visually impaired electronic data processing workers. Agencies serving the visually impaired individuals should be aware of electronic data processing job requirements in order to

refer the best qualified visually impaired applicants and also to counsel visually impaired individuals about career opportunities in the computer field. Computer training facilities must be updated to meet the needs of the industry and to accommodate the training of visually impaired individuals on all appropriate equipment and in program languages.

Line management is also concerned about how one supervises a visually impaired employee, as well as about the safety of the visually impaired employee.

The best and most effective agent of attitude change would, as stated by Nichols (1979), seem to be actually experience employing the visually impaired individuals. By hiring, orienting, placing, supervising, and interacting with visually impaired individuals, employers seem to come to see them as individuals with similar strengths and weaknesses as sighted individuals.

Ward (1973) conducted a survey where a researcher actually went into various companies which had hired visually impaired individuals into their computer operations and discussed with the immediate supervisors the disadvantages or difficulties encountered. Here is a composite of the comments made by the employers: (1) apprehensiveness at first, did not know what to expect, just could not see how this individual could function as a programmer; (2) the individual adapted well to the new environment and to his fellow workers; (3) personality

and confidence soon proved, within a short period of time, that the job could be done, and (4) the tasks assigned were completed in a minimal amount of time, experiencing the same errors common to most programmers.

The basic problem area encountered is that a visually impaired individual could not function effectively as a maintenance software programmer. A maintenance programmer is an individual who maintains a software program written by someone else. It would be more cost effective if the visually impaired individual rewrote the program in his or her own logic.

Summary

Research studies indicate a wide range in attitudes among employers, which, in effect, can be considered as authentic or false (unrealistic) positive stereotypes, or as negative stereotypes, which can consequently create employer prejudice and employer discrimination against disabled individuals. It was suggested that when respondents, such as employers, lack experience as well as commitment, their replies to some attitudes towards impairment scales can be influenced by halo and central tendency affects but actually are falsely positive stereotypes.

The interactions between productivity evaluations, impairment, and job settings return to the issue of impairment versus the work disability. The disability, again, represents the interaction of the function limitations of

the impairment with the work environment. In this setting a severe disability may be made less severe through a restructuring of the job, a modification of the work site, or through a more imaginative perception of the capabilities of the individual.

Chapter 3

METHODS

This chapter presents the methods and procedures used in this study. The essentials of the survey research process included the design, selection of subjects, instrumentation, procedures of attitudinal research, presentation of the data, the method of evaluation, and criteria of evaluation.

Design

This study utilizes a descriptive survey approach. Fox (1969) defines a descriptive survey as a study which describes a specific set of phenomena in and of itself. Further, this study is not based on a theoretical notion, but on empirical data as it relates to the visually impaired individual's employment in the area of computer services.

The specific set of phenomena described is that employers, based on their positive or negative attitudes toward the capabilities of visually impaired individuals will be willing or unwilling to hire a visually impaired individual.

Selection of the Subjects

Subjects were selected from large, medium and small computer organizations, located in the Southern California area. These organizations were selected from: (1) advertisements in a number of data processing magazines such as Datamation and Computerworld; (2) the San Diego telephone directory, listed under data; and (3) while attending a physically handicapped convention, the researcher received a list of names of individuals interested in the employment of the physically handicapped.

Each prospective respondent was sent, by mail, a questionnaire, a cover letter (Appendix B), a stamped return envelope, and a post card, should the respondent want a digest of the findings of the study. Each respondent was asked not to sign his or her name so that the results of the study would remain anonymous. The subjects used in the study consisted of 350 employers skilled in computer technology. Some were Naval and Federal Civil Service employers skilled in the following occupational areas: computer analyst, computer programming, computer specialists, personnel specialists, and information systems specialists. Other specialists were from various companies such as Control Data Corporation, Computer Sciences Corporation, and International Business Machines Corporation.

Questionnaires were sent to Navy professionals employed at Fleet Combat Directions Systems Support Activity, Naval Oceans Systems Center, San Diego, and

private industries in the Southern California area. These areas were selected because of the rich resources available.

The identification of key computer professionals was not difficult. The difficulty arose with the number of questionnaires returned. Of the 350 questionnaires sent out only 200 were returned. Most were filled out completely and correctly. It became apparent to the researcher that most respondents were unaware that this type of problem really existed. One hundred were interested in obtaining a digest of the findings of the study.

Instrumentation

In order to generate the data needed to test the questions of this study a general questionnaire was designed. The instrument used in the study was designed by the researcher to elicit the attitudes of computer employers relative to the employment of the visually impaired individual in the computer industry (see Appendix C). Each question consists of the following responses: Strongly Agree, Agree, Strongly Disagree, and Disagree.

The response No Opinion was omitted from the instrument in an attempt to stimulate respondents' replies to all the statements presented in the instrument. Further, to eliminate the possibilities that respondents might use evasive action on those statements which could be a cause for attitudinal self-questioning. In other words, managers

might answer a statement with, No Opinion, if they felt it was compromising or objectionable to their beliefs.

To ensure the validity and reliability of the instrument, the researcher developed this questionnaire based on the feedback of various experts in the management field, various individuals in tests and measurements from United States International University, and from a number of experts in the computer industry.

A pilot study was conducted, consisting of forty questions designed to provide a trial run of the data collection approach. It was conducted orally with a total of seven, as the target group. The target group consisted of four computer specialist division managers, two computer technician department managers and one computer specialist in a non-supervisory position. Each question was thoroughly examined and either accepted or rejected. All rejected questions were omitted. The group was then asked to determine the reliability of each question through group discussion and interpretation.

After the pilot study was completed, a final questionnaire consisting of thirty-two questions was developed for the study.

Procedure of Attitudinal Research

The researcher attempted to contact those individuals who were in managerial positions in the computer industry. Each manager was responsible for operating

and/or maintaining data processing departments. They also interview for jobs and set requirements for up-coming job openings; hiring and firing of individuals are also part of their responsibilities. To ensure that the questionnaires would reach the prescribed individuals, each envelope was addressed: ATTN: DATA PROCESSING ADMINISTRATOR.

Presentation of Data

Responses are tabulated in the form of statistical tables consisting of percentages accumulated from the instrument. The presentation of the results of this study are divided into men and women executives, between specific age groups, with supplementary evaluation of the variables of: education, marital status, size of the organization (dollar value); number of employees and geographic locations are evaluated as they pertain to each statement.

Method of Evaluation

The results of each statement were documented and tabulated using a hand analysis process of tallying. This method was used to determine which statements were answered most frequently, and also to determine if there were positive or negative opinions based on age, sex, education, marital status, size of the organization (dollar value), number of employers, and geographic locations.

Criteria for Evaluation

In an attempt to produce clarity and accuracy of data the following areas were used as criteria for evaluation of results within this study:

1. The current statistical methodology was used to create a relatively visible approach for evaluation of research results. Further, it was suggested by the California State Board of Rehabilitiation, that this type of statistical approach would be most practical for their needs. Rather than trying to utilize another path or theoretical notion, the researcher felt, as a means of gathering and presenting the most accurate form of information, that the methods of tallying and percentage representation demonstrated an effective manner of appraising the results.

2. Women and men were used to determine if there existed any differences of opinion between women of a particular age group and men of a particular age group.

3. Education, marital status, size of organization, number of employees, and geographic locations were used to elicit any similarities associated between these variables and the statements proposed within the instruments.

4. To develop any consistency between those who employ the visually impaired and those who did not employ the visually impaired, and the manner in which they

responded to each statement.

5. Further, to distinguish whether the general attitude of the computer industry is positive or negative toward the visually impaired computer professional.

Chapter 4

FINDINGS

This chapter presents the results of the attitude survey based on two hundred questionnaires received from data processing administrators throughout the Southern California area. Tables 1 through 32 report the results of the responses to each item on the questionnaire. (It should be noted that not all statements were answered, and because of this each table differs in the total number of responses.)

Table 1 presents responses related to the knowledge of managers in the computer industry regarding current employment of the visually impaired. The responses shown in Table 1 were not considered positive or negative in nature, but rather were used as a base line for comparative analysis of replies to this statement.

A total of 26 women employers responded to the instrument. Their mean age was 34.75 years, which was rounded to 35. These women were divided into two age groups; women 35 and under, hereinafter referred to as younger women, and women 36 years of age and older, hereinafter referred to as older women.

One hundred and sixty-six male employers responded to the instrument. The mean age was 41.78 years, which

was rounded to 42. Men aged 42 and under were identified as younger men, while those 43 and over were identified as older men.

Table 1

Employer Responses to Item 1

Item 1: We employ blind employees

Groups	No./Total of Responses	Employer Responses					
		Agree		%	Disagree		%
Women							
35 and under	14 = 26	5 = 26		35.7	9 = 10		64.3
36 and older	12	11		91.6	1		8.4
Men							
35 and under	90 = 166	32 = 62		35.5	58 = 104		64.5
36 and older	72	30		29.5	46		60.5
TOTAL	192	78 (40.6%)			114 (59.3%)		

It was found that 78 individuals, of which 5 (35.7 percent) were younger women, 11 (91.6 percent) were older women, 32 (35.5 percent) were younger men and 30 (39.5 percent) were older men, reported that they employed the visually impaired. One hundred and fourteen individuals consisting of 9 (64.3 percent) younger women, 1 (8.4 percent) older woman, 58 (64.5 percent) younger men and 46 (60.5 percent) older men, reported that they did not presently employ the visually impaired were interested in what steps they could take to bring visually impaired computer professionals into their organizations.

A small computer organization consists of not more than 500 employees, a medium computer organization consists of not more than 2,000 employees, and a large computer organization comprises 2,000 or more employees.

The findings shown in Table 2 indicated that the general consensus was that a visually impaired individual could do as well as a sighted individual with the same level of education and experience. Two hundred employers responded to this item, of which 135 (67.5 percent) felt a visually impaired individual could function as well as a sighted individual with the same educational and experience level. The other 65 (32.5 percent) employers returned unfavorable responses to this item.

Table 2

Employer Responses to Item 2

Item 2: A blind person can do as well as a sighted person with the same level of education and experience.

Groups	No./Total of Responses		Employer Responses: Agree		%	Disagree		%
Women								
35 and under	14	= 26	7	= 16	50.0	7	= 10	50.0
36 and older	12		0		75.0	3		25.0
Men								
35 and under	90	= 174	63	= 119	70.0	27	= 55	30.0
36 and older	84		56		66.7	28		33.0
TOTAL	200		135 (67.5%)			65 (32.5%)		

Of the 26 women responding to this item, 16 (61.5 percent) responded positively, while 10 (38.5 percent) responded unfavorably. Of the 16 women who responded favorably, 7 (50 percent) were younger women and 9 (75 percent) were older women. Of the 10 women who responded unfavorably, 7 (50 percent) were younger women and 3 (25 percent) were older women. Sixty-three (70 percent) of the younger men and 56 (66.7 percent) of the older men responded favorably toward the visually impaired individual, whereas 27 (30 percent) of the younger men and 28 (33.3 percent) of the older men did not feel a visually impaired individual could effectively function in the computer industry regardless of education and experience.

Tables 2A and 2B represent the total correlation of responses used to determine attitudes by sex, age and size of computer organization. Of the 16 women employers, 4 (25 percent) represented small organizations and 3 (18.8 percent) represented medium organizations (Table 2A). Of the 22 males represented in small organizations, 12 (19 percent) were younger men and 10 (17.8 percent) were older men. Of the 75 men in medium organizations, 40 (63.5 percent) were younger men and 35 (62.5 percent) were older men, while the 22 men representing large organizations consisted of 11 (17.5 percent) younger men and 11 (19.7 percent) older men.

It was found that women and men between the ages of 36 and 42, who managed medium size organizations, could be expected to respond most affirmatively to the visually

Table 2A

Responses by Size of Organization--Agree

Groups	No./Total of Responses	Size of Organization					
		Small	%	Medium	%	Large	%
Women							
35 and under	7 = 16	2 = 4	28.5	4 = 9	57.2	1 = 3	14.3
36 and over	9	2	22.2	5	55.6	2	22.2
Men							
42 and under	63 = 119	12 = 22	19.0	40 = 75	63.5	11 = 22	17.5
43 and over	56	10	17.8	35	62.5	11	19.7
TOTAL	135	26 (19.3%)		84 (62.2%)		25 (18.5%)	

impaired individual seeking employment in the computer industry (Table 2A).

Of the 10 women representing small organizations, 2 (28.6 percent) were younger women and 1 (33.3 percent) was an older woman. Only 1 (14.3 percent) of the women employers in this group was a manager in a medium size computer organization while 4 (57.1 percent) younger women and 2 (66.7 percent) older women were employed in large size computer organizations (Table 2B).

Six (22.2 percent) younger men and 5 (17.9 percent) older men were executives in small organizations, 9 (33.4 percent) younger men and 10 (35.5 percent) older men represented medium size organizations while 12 (44.4 percent) younger men and 13 (46.6 percent) older men represented large organizations.

It was found that both younger women and older men who represented large organizations agreed that visually impaired individuals could not function as well as sighted individuals with the same level of education and experience.

A comparison between Table 1 and Table 2 indicated that 95 percent of those who employed the visually impaired individual felt that with equal education and experience a visually impaired individual could perform as well as a sighted individual. In contrast employers who did not employ the visually impaired individual provided no distinguishable patterns relative to this statement.

The findings shown in Table 3 were used to determine

Table 2B

Responses by Size of Organization--Disagree

Groups	No./Total of Responses	Size of Organization					
		Small	%	Medium	%	Large	%
Women							
35 and under	7 = 10	2 = 3	28.6	1 = 1	14.3	4 = 6	57.1
36 and over	3	1	33.3	0	0	2	66.7
Men							
42 and under	27 = 45	6 = 11	22.2	9 = 19	33.4	12 = 25	44.4
43 and over	28	5	17.9	10	35.7	13	46.4
Total	65	14 (21.5%)		20 (30.8%)		31 (47.7%)	

if employers considered work environment mobility a serious problem for visually impaired employees. Two hundred individuals responded to this item.

Eight (57.4 percent) of the younger women felt that mobility was a serious problem for the visually impaired professional, while 6 (42.6 percent) of the younger women felt that mobility was not a serious problem. Four (33.3 percent) of the older women believed that work environment mobility was a serious problem, while 8 (66.7 percent) of the older women felt this type of mobility was not a serious problem.

Of the 90 younger men responding to this item, 41 (45.6 percent) felt that mobility was a serious problem, while 49 (54.4 percent) did not feel that mobility was a serious problem. Forty-five (53.6 percent) of the older men felt that work environment mobility was a serious problem, whereas 39 (46.4 percent) of the same group felt that mobility was not a problem.

It was found that older women and younger men felt that mobility was not a problem, while younger men and older men took the opposite view. The findings indicated that of the 200 respondents 102 (51 percent) felt that work environment mobility was not a serious problem for the visually impaired within the computer industry.

In comparing the responses of these employers to those who did not employ the visually impaired professional, it was found that 80 employers in the latter group indicated

mobility as a serious problem for the visually impaired professional. This would indicate that perhaps fears about employee mobility may have accounted for their failure to employ the visually impaired individual.

Table 3

Employer Responses to Item 3

Item 3: Mobility is a serious problem for blind people.

Groups	No./Total of Responses	Employer Responses					
		Agree		%	Disagree		%
Women							
35 and under	14	8	= 12	57.4	6	= 14	42.6
36 and over	12 = 26	4		33.3	8		66.7
Men							
42 and under	90	41	= 86	45.6	49	= 102	54.4
43 and over	84 = 174	45		53.6	39		46.4
TOTAL	200	98 (49.0%)			102 (51.0%)		

The findings indicated in Table 4 showed that the employers in the computer industry believed it would be difficult for the visually impaired professional to get employment in the computer profession as compared to other fields.

The results shown in this table revealed the attitude of managers in the computer industry concerning the flexibility and accessibility of hiring the visually impaired professional. One hundred and sixty-six individuals responded to this item.

Only 2 (14.3 percent) of the 14 younger women executives responded that they felt visually impaired individuals found it easier to get jobs in the computer profession than in other professions. A total of 12 (85.7 percent) younger women felt entrance into the computer profession would be difficult for the visually impaired. Of the older women, 7 (58.3 percent) believed a visually impaired professional would find it easy to obtain a job in the computer industry, while 5 (41.7 percent) of the older women felt that such an individual would find it difficult to obtain a job in the computer industry as compared to another profession.

Table 4

Employer Responses to Item 4

Item 4: Blind people find it easier to get jobs in my profession than in another profession.

Groups	No./Total of Responses	Employer Responses			
		Agree	%	Disagree	%
Women					
35 and under	14 = 26	2 = 9	14.3	12 = 17	85.7
36 and over	12	7	58.3	5	41.7
Men					
42 and under	90 = 140	35 = 45	38.9	55 = 95	61.1
43 and over	50	10	20.0	40	80.0
TOTAL	166	54 (32.5%)		112 (67.5%)	

Of the 140 male respondents, 35 (38.9 percent) and 10 (20 percent) older men would find it easier to obtain

employment in the computer industry than in another profession, while 55 (61.1 percent) younger men and 40 (80 percent) older men felt that obtaining a job in the computer profession would be difficult for the visually impaired.

The general consensus of men and women was that visually impaired individuals would not find it easy to get employment in the computer profession as compared to another profession.

The information from Table 1 was compared with the results of Table 4, and it was found that individuals who did not employ the visually impaired are generally of the opinion that such individuals would not find it easy to obtain employment in the computer profession.

A correlation was found between those individuals who employed the visually impaired (see Table 1) and those respondents who indicated that training for work in the computer field would not be hindered by blindness (see Table 5). Those who did not employ the visually impaired scored well within the range of those individuals who felt that blindness would be a hindrance in training for work in the computer field. This is an indication that computer executives have few guidelines or historical work backgrounds from which to evaluate the handicapped employee.

Five (35.7 percent) of the younger women felt that blindness would hinder computer training, while 9 (64.3 percent) believed that it would not. Of the older women 8 (66.7 percent) believed that such training would be

hindered by blindness and 4 (33.3 percent) of these women felt that it would not.

Of the 90 younger men respondents, 45 (50 percent) believed that training for work in the computer field would be hindered by blindness, while the remaining 50 percent felt training was not hindered by blindness. Thirty-three (39.3 percent) of the older men felt training was not a hindrance while 51 (60.7 percent) believed training would be hindered by blindness.

Table 5

Employer Responses to Item 5

Item 5: Training for work in my field would not be hindered by blindness.

Groups	No./Total of Responses	Employer Responses			
		Agree	%	Disagree	%
Women					
35 and under	14 = 26	5 = 13	35.7	9 = 13	64.3
36 and over	12	8	66.7	4	33.3
Men					
42 and under	90 = 174	45 = 78	50.0	45 = 96	50.0
43 and over	84	33	39.3	51	60.7
TOTAL	200	91 (45.5%)		109 (54.5%)	

It was found that the general consensus of the respondents was that blindness would not be a hindrance in training in the computer field.

In conducting a cross analysis, it was found that 40 percent of those employers who did not employ the visually

impaired (Table 1), also did not agree with the statement that computer training would not be hindered by blindness. This was found to be consistent with the attitudes previously expressed by those who did not employ the visually impaired computer professional.

Table 6 shows the results concerning employers' attitudes toward purchasing special equipment needed to assist visually impaired prospective employees in the work environment. There were 190 responses to this item.

Although a number of respondents indicated that they would not purchase this equipment, they stated that other financial assistance would be sought to supply needed equipment. These employers represented 10 percent of those (see Table 1) who did not employ the visually impaired professional.

Table 6

Employer Responses to Item 6

Item: In hiring a blind person, I would purchase the special equipment needed to assist this profession (up to $4,000).

Groups	No./Total of Responses		Employer Responses: Agree		%	Disagree		%
Women								
35 and under	14	= 26	5	= 14	35.7	9	= 12	64.3
36 and over	12		9		75.0	3		25.0
Men								
42 and under	90	= 164	54	= 78	60.0	36	= 86	40.0
43 and over	74		24		32.4	50		67.6
TOTAL	190		92 (48.4%)			98 (51.6%)		

Five (35.7 percent) younger women and 9 (75 percent) older women managers indicated that special equipment would be purchased while 9 (64.3 percent) younger women and 3 (25 percent) older women stated that they would not purchase such equipment. Fifty-four (60 percent) younger men and 24 (32.4 percent) older men said that if such equipment were needed that it would be purchased while 36 (40 percent) younger men and 50 (67.6 percent) older men indicated that special equipment would not be purchased. The findings indicate that older women and younger men, as compared to younger women and older men, would most likely purchase any special equipment.

The findings shown in Table 6A indicated that 1 (20 percent) of the younger women and 2 (22 percent) of the older women represent small organizations, 3 (60 percent) younger women and 4 (44.5 percent) older women represent medium organizations, while 1 (20.2 percent) younger woman and 3 (33.3 percent) older women represent large organizations, all of whom would purchase special equipment for the visually impaired professional. Further, 4 (7.4 percent) younger men and 3 (12.5 percent) older men are executives in small organizations, 15 (27.8 percent) younger men and 10 (41.7 percent) older men are employed as executives in medium organizations while 35 (64.8 percent) younger men and 11 (45.8 percent) older men represent large organizations which would purchase special equipment (Table 6A). Findings indicate that of the 92 responses, 50 (54.3

Table 6A

Responses by Size of Organization--Agree

Groups	No./Total of Responses	Size of Organization					
		Small	%	Medium	%	Large	%
Women							
35 and under	5	1	20.0	3	60.0	1	20.0
36 and over	9 = 14	2 = 3	22.0	4 = 7	44.5	3 = 4	33.3
Men							
42 and under	54	4	7.4	15	27.8	35	64.8
43 and over	24 = 78	3 = 7	12.5	10 = 25	41.7	11 = 46	45.8
TOTAL	92	10 (10.9%)		32 (34.8%)		50 (54.3%)	

percent) of large organizations would be most prone to purchase special equipment needed to assist the visually impaired professionals.

Table 6B shows the findings that large size organizations would not purchase special equipment for the visually impaired professional. Of these employers only 2 (22.2 percent) younger women represented small organizations, 3 (33.3 percent) younger women and 2 (66.7 percent) older women represented medium organizations while 4 (44.5 percent) younger women and 1 (33.3 percent) older woman were executives in large organizations. Ten (27.8 percent) younger and 5 (10 percent) older men were employed by small organizations, 14 (38.9 percent) younger men and 15 (30 percent) older men were employed by medium organizations while 12 (33.3 percent) younger men and 30 (60 percent) older men were executives of large organizations. Findings indicate that of the 98 respondents by size of organization, 47 (48 percent) representing large organizations stated they would not purchase special equipment.

The findings indicated that older women and younger men represent that group of employers who would be most likely to assist the visually impaired individual in adapting to the work environment through the purchase of any needed special equipment. It was also found that these men and women represented primarily medium and large computer organizations. A number of managers in small organizations indicated that they would seek monetary

Table 6B

Responses by Size of Organization--Disagree

Groups	No./Total of Responses	Size of Organization					
		Small	%	Medium	%	Large	%
Women							
35 and under	9 = 12	2 = 2	22.2	3 = 5	33.3	4 = 5	44.5
36 and over	3	0	0	2	66.7	1	33.3
Men							
42 and under	36 = 86	10 = 86	27.8	14 = 29	38.9	12 = 42	33.3
43 and over	50	5	10.0	15	30.0	30	60.0
TOTAL	98	17 (17.3%)		34 (34.7%)		47 (48.0%)	

assistance through various governmental agencies to facilitate the purchase of such equipment if needed.

Table 7 shows the results concerning the attitudes of the computer industry towards hiring the visually impaired computer professional. A total of 198 employers responded to this item.

Table 7

Employer Responses to Item 7

Item 7: Employers would rather hire a sighted person.

Groups	No./Total of Responses		Employer Responses: Agree			Disagree		
Women								
35 and under	14	= 26	11	= 20	78.6	3	= 6	21.4
36 and over	12		9		75.0	3		25.0
Men								
42 and under	90	= 172	72	= 118	80.0	18	= 54	20.0
43 and over	82		46		56.1	36		43.9
Total	198		138 (69.7%)			60 (30.3%)		

Eleven (76.8 percent) of the 14 younger women felt that employers would rather hire a sighted individual, while 3 (21.4 percent) felt that employers would not rather hire a sighted individual. Of the older women, 9 (75 percent) would rather hire a sighted individual, and 3 (25 percent) would not rather hire a sighted individual.

Seventy-two (80 percent) of the younger men felt that employers would rather hire a sighted individual,

while 18 (20 percent) in the same group believed the opposite to be true. Of the older men, 46 (56.1 percent) would rather hire a sighted individual, while 36 (43.9 percent) had the opposite view.

The findings indicated that 138 (69.7 percent) men and women of both age groups felt that employers would rather hire a sighted individual. Finally, 55 percent of those employers who did not employ the visually impaired (see Table 1), also said that employers would rather employ the sighted individual.

The findings presented in Table 8 indicated the attitudes of the employers and the computer industry towards visually impaired individuals attempting to enter the computer field. A total of 200 responses was received to this item.

Table 8

Employer Responses to Item 8

Item 8: To get a job in my field would be very difficult for a blind person.

Groups	No./Total of Responses	Employer Responses			
		Agree	%	Disagree	%
Women					
35 and under	14 = 26	11 = 19	78.6	3 = 7	21.4
36 and over	12	8	66.7	4	33.3
Men					
42 and under	90 = 174	50 = 112	55.6	40 = 62	44.4
43 and over	84	62	73.8	22	26.2
TOTAL	200	131 (65.5%)		69 (34.5%)	

Of the 14 younger women respondents, 11 (78.6 percent) felt that it would be difficult for the visually impaired to get a job in the computer field, while 3 (21.4 percent) felt that the task would not be difficult for such individuals. Eight (66.7 percent) of the older women felt that a visually impaired individual would have difficulty obtaining a job in the computer industry and 4 (33.3 percent) had the opposite opinion.

Of the 90 male respondents, 50 (55.6 percent) believed that the visually impaired would find it difficult obtaining employment in the computer field, while 40 (44.4 percent) of the younger men indicated that getting a job in the computer field would not be difficult for the visually impaired. Of the older men, 62 (73.8 percent) considered the computer field a difficult one for the visually impaired to enter, while 22 (26.2 percent) felt that entrance would not be difficult for the visually impaired computer professional.

It was found that the majority of women and men, 131 (65.5 percent), believed that employment in the computer field would be difficult for a visually impaired individual to obtain. Employers (see Table 1) who consistently showed negative attitudes toward hiring the visually impaired represented 35 percent of those executives who felt entrance in the computer field would be difficult (see Table 8). Employers who employ the visually impaired (see Table 1) stressed the opinion that there still exists an

enormous amount of resistance to the employment of the visually impaired individual within the computer industry.

Table 9 summarizes results concerning the attitudes regarding expenditures for the extra supervision of a visually impaired computer professional. A total of 200 respondents answered this item.

Table 9

Employer Responses to Item 9

Item 9: The extra supervision needed for blind employees is too costly for most employers.

Groups	No./Total of Responses	Employer Responses			
		Agree	%	Disagree	%
Women					
35 and under	14 = 26	7 = 12	50.0	7 = 14	50.0
36 and over	12	5	41.7	7	58.3
Men					
42 and under	90 = 174	35 = 82	38.9	55 = 92	61.1
43 and over	84	47	56.0	37	44.0
TOTAL	200	94 (47.0%)		106 (53.0%	

Seven (50 percent) of the younger women indicated that extra supervision was too costly, while the remaining 50 percent felt that extra supervision would not be too costly for most employers. Five (41.7 percent) of the 12 older women respondents believed that extra supervision would be too costly, while the remaining 7 (58.3 percent) believed that the cost of extra supervision would be minimal.

Thirty (38.9 percent) younger men indicated that

the cost of extra supervision would be expensive, while 55 (61.1 percent) in this same group felt that extra supervision would not be extremely costly. Of the 84 older men, 47 (56 percent) responded favorably to the cost of extra supervision, while 37 (44 percent) believed that extra supervision was too costly.

The general consensus of respondent opinion was that the extra supervision needed for the visually impaired employee would not be too costly for most employers. It was also found that of the 114 respondents who did not employ the visually impaired (see Table 1), 20 percent were included with those respondents who believed extra supervision for the visually impaired employee was not too costly for most employers.

Table 10 summarizes findings concerning the attitudes of computer employers towards making special recruitment efforts to hire the visually impaired computer professional. A total of 200 employers responded to this item.

Of the 26 total women respondents, 16 women felt that special recruitment efforts would be made, of which 8 (57.1 percent) were younger women and 8 (66.7 percent) were older women. Ten women felt that special efforts would not be made, of which 6 (42.9 percent) were older women. Thirty-six (40 percent) younger men and 63 (76 percent) older men of the 174 male respondents indicated that they would employ special efforts to attract the

visually impaired computer professional, while 54 (60 percent) younger men and 20 (24 percent) older men said that no special efforts would be made.

Table 10

Employer Responses to Item 10

Item 10: Employers will go out of their way to give a blind person a chance.

Groups	No./Total of Responses	Employer Responses					
		Agree		%	Disagree		%
Women							
35 and under	14 = 26	8 = 16		57.1	6 = 10		42.9
36 and over	12	8		66.7	4		33.3
Men							
42 and under	90 = 173	36 = 99		40.0	54 = 74		60.0
43 and over	83	63		76.0	20		24.0
TOTAL	199	115 (57.8%)			84 (42.2%)		

It was found that younger men had negative attitudes toward making special recruitment efforts to employ the visually impaired, while women of both age groups and older men said special recruitment efforts would be made. Finally, men as a group were not in agreement about whether or not they would institute special recruitment procedures.

The general consensus to this item was that 115 (57.8 percent) of the respondents felt special efforts would be made to attract the visually impaired individual as compared to the 84 (42.2 percent) respondents who said no effort would be made.

The findings shown in Table 11 indicated whether the discomfort of sighted co-workers would play a role in the decision to hire a visually impaired professional. There were 191 tabulated responses to this item.

Table 11

Employer Responses to Item 11

Item 11: Sighted co-workers will be uncomfortable around blind people.

Groups	No./Total of Responses	Employer Responses			
		Agree	%	Disagree	%
Women					
35 and under	14	4	28.6	10	71.4
36 and over	12 = 26	4 = 8	33.3	8 = 18	66.7
Men					
42 and under	90	35	38.9	55	61.1
43 and over	75 = 165	50 = 85	66.7	25 = 80	33.3
TOTAL	191	93 (48.7%)		98 (51.3%)	

Of those individuals responding that they did not employ visually impaired individuals (see Table 1), 60 percent felt that co-workers would be uncomfortable around the visually impaired computer professional. On the other hand, 80 percent of those individuals who said that they did employ the visually impaired professional were among the 51.3 percent who believed that a sighted co-worker would not be uncomfortable around a blind individual (see Table 11).

Respondents reacted to this item by conversing in

writing on the questionnaire. An assessment of the remarks indicated that some discomfort was to be expected because of sensitivity towards any type of physical impairment. On the basis of other comments, it was found that those individuals not employing the visually impaired computer professional were unwilling to upset the harmony of their office to help satisfy a need that they were not sure existed; nor did they want to accept the proof that such individuals could, when given the opportunity, function within a computer organization.

Four (28.6 percent) of the younger women felt that there would be some discomfort, while 10 (71.4 percent) younger women believed that sighted co-workers would not be uncomfortable. Four (33.3 percent) of the older women felt that there would be some discomfort, while 8 (66.7 percent) did not feel that sighted co-workers would be uncomfortable. It was found that women of both age groups generally believed that there would be no discomfort around visually impaired individuals.

Of the 90 younger men 35 (38.9 percent) felt that sighted co-workers would experience some discomfort, while 55 (61.6 percent) believed that there would be no discomfort. Fifty (66.7 percent) of the older men felt that sighted co-workers would be uncomfortable, and 25 (33.3 percent) felt that the sighted co-worker would not experience any discomfort.

It was found that the majority of men felt sighted

co-workers would be uncomfortable around visually impaired individuals. The total findings indicated that 98 (51.3 percent) of the 191 employers believed that sighted co-workers would not feel any discomfort around the visually impaired computer professional.

Table 12 summarizes results concerning employer attitudes toward employing the visually impaired computer professional. One hundred and ninety-nine executives responded to this item.

Table 12

Employer Responses to Item 12

Item 12: Most places do not want to hire blind professionals.

Groups	No./Total of Responses		Employer Responses				
			Agree		%	Disagree	%
Women							
35 and under	14	= 26	8	= 16	57.1	6 = 10	42.9
26 and over	12		8		66.7	4	33.3
Men							
42 and under	90	= 173	36	= 99	40.0	54 = 74	60.0
43 and over	83		63		75.9	20	24.1
TOTAL	199		115 (57.8%)			84 (42.2%)	

Sixteen, 8 younger and 8 older women, of the 26 women respondents felt that most organizations would not hire visually impaired computer professionals, while 10, 6 younger and 4 older women, indicated that most organizations would hire the visually impaired individual. Out

of 173 men, 99 consisting of 36 younger and 6 older men, believed that most computer organizations would not employ the visually impaired, while 74 consisting of 54 younger and 20 older men, felt that such organizations would employ the visually impaired professional.

It was found that women of both age groups as well as older men felt that most organizations would not employ the visually impaired. It was found that of the 114 respondents who did not employ the visually impaired (see Table 1), 75 percent were included with those who felt that most places did not want to hire such professionals.

The findings indicated that the general public does not recognize the need for social adjustments to accommodate the visually impaired in the computer industry. Some employers who did employ the visually impaired commented that fear was their initial motive for not hiring, and once this fear was overcome that a visually impaired professional was hired.

Table 13 summarizes findings concerning the attitudes of computer executives towards qualification standards for employment in the computer field. A total of 200 individuals responded to this item.

Of the 26 women respondents, 16 (61.5 percent) believed that a visually impaired individual's qualifications must be better than those of sighted individuals, while 10 (38.5 percent) women felt that the qualifications would be the same regardless of the handicap. Ninety-five

(54.6 percent) of the 174 male respondents believed that visually impaired individuals' qualifications should be better, while 79 (45.5 percent) men indicated that the qualifications should be the same for all employees.

Table 13

Employer Responses to Item 13

Item 13: A blind person's qualifications would have to be better than those of a sighted person to get a job in my field.

Groups	No./Total of Responses	Employer Responses					
		Agree		%	Disagree		%
Women							
35 and under	14 = 26	8 = 16		57.1	6 = 10		42.9
36 and over	12	8		66.7	4		33.3
Men							
42 and under	90 = 174	37 = 95		41.1	53 = 79		58.9
43 and over	84	58		69.0	26		31.0
TOTAL	200	111 (55.5%)			89 (44.5%)		

The findings indicated that women of both age groups as well as older men felt that visually impaired individuals' qualifications would have to be better than those of sighted individuals to obtain employment in the computer field.

It was found that 20 percent of those who did employ the visually impaired (see Table 1) were among those who believed that visually impaired individuals' qualifications would have to be better than those of a sighted individual to obtain employment in the computer

industry. Ten percent of these employers regretfully extended the opinion that even though the practice is a normal procedure that the business world needs to be better educated regarding the training and mental capabilities of the visually impaired within the computer field. Findings showed that those employers who did not employ the visually impaired (see Table 1) were totally represented within the 111 (55.5 percent) respondents who felt that a visually impaired individual would have to be better qualified than a sighted individual.

The findings shown in Table 14 relate to the attitudes of employers within the computer industries regarding supervision and/or assistance needed to aid a visually impaired individual in the computer field. A total of 171 managers replied to this item.

Table 14

Employer Responses to Item 14

Item 14: A sighted person will have to assist a blind person in order to do work in my field.

Groups	No./Total of Responses	Employer Responses			
		Agree	%	Disagree	%
Women					
35 and under	14 = 26	9 = 16	64.3	5 = 10	35.7
36 and over	12	7	58.3	5	41.7
Men					
42 and under	84 = 145	33 = 63	39.3	51 = 82	60.7
43 and over	61	30	49.2	31	50.8
TOTAL	171	79 (46.2%)		92 (53.8%)	

Of the 14 younger women employers, 9 (64.3 percent) felt that a sighted person's assistance would be needed for the visually impaired professional, while 5 (35.7 percent) did not believe that such assistance would be needed.

Seven (58.3 percent) of the 12 older women respondents felt that a visually impaired individual would need assistance, while 5 (41.7 percent) did not believe that this assistance would be necessary.

Thirty-three (39.3 percent) of the younger men felt that assistance was an important factor, while 51 (60.7 percent) did not believe that assistance would be needed. Of the 61 older men, 30 (49.2 percent) believed that assistance would be needed, while 31 (50.8 percent) did not feel that it would.

The findings indicated that women of both age groups felt that assistance would be needed for the visually impaired, while men of both age groups did not feel that such assistance would be necessary.

Those 15 percent of employers who employ the visually impaired (see Table 1) responded positively to this statement. Similarly, 75 percent of the employers who did not employ the visually impaired felt that a sighted individual would have to assist a visually impaired individual to enable him/her to perform work-related duties.

The results shown in Table 15 relate to the possibility that fear may be a major element in the decision not to hire the visually impaired professional. It was found

that fear of the unusual caused much tension for the 200 respondents to this statement. Most executives were afraid to employ a visually impaired computer professional.

Table 15

Employer Responses to Item 15

Item 15: Most employers are afraid to hire blind people.

Groups	No./Total of Responses	Employer Responses			
		Agree	%	Disagree	%
Women					
35 and under	14 = 26	10 = 20	71.4	4 = 6	28.6
36 and over	12	10	83.3	2	16.7
Men					
42 and under	90 = 174	37 = 88	41.1	53 = 86	58.9
43 and over	84	51	60.7	33	39.3
TOTAL	200	108 (54%)		92 (46%)	

The findings indicated that most employers were afraid of the adjustments, repercussions and extra precautions needed when the visually impaired are in the work environment. Even those who employ the visually impaired (see Table 1) expressed their apprehension when anticipating employing an individual with this type of impairment. Employers who hire the handicapped indicated that once the adjustment was made they felt more relaxed about the visually impaired professional's introduction into the work environment. It was found that many felt that uncertainty could be surpassed only by involving the visually impaired computer professional (more effectively) in the

work environment.

Of the 14 younger women, 10 (71.4 percent) felt that most employers were afraid to hire the visually impaired professional. Four (28.6 percent) of the younger women felt that employers were not afraid to hire the visually impaired. Ten (83.3 percent) of the older women believed that employers were afraid to hire the visually impaired professional, while 2 (16.7 percent) felt employers were not afraid.

Thirty-seven (41.1 percent) of the younger men felt that fear or uncertainty was indicated when anticipating the hiring of visually impaired professionals, while 53 (58.9 percent) did not feel that this was so. Fifty (60.7 percent) of the older men were afraid to hire the visually impaired, while 33 (39.3 percent) believed that no fear was involved. It was found that women of both age groups and that older men felt that most employers were afraid to hire the visually impaired professional. Of the 200 total number of respondents, 108 (54 percent) felt that most employers are afraid to hire the visually impaired professional.

Table 16 shows the findings regarding computer executives being prejudiced against the visually impaired professional. A total of 200 respondents answered this item.

Seventy-five percent of those who did not employ the visually impaired (see Table 1) were included with

those employers who were considered prejudiced against the visually impaired professional (see Table 16).

Table 16

Employer Responses to Item 16

Item 16: Employers are prejudiced against blind people.

Groups	No./Total of Responses	Employer Responses			
		Agree	%	Disagree	%
Women					
35 and under	14 = 26	6 = 15	42.9	8 = 11	57.1
36 and over	12	9	75.0	3	25.0
Men					
42 and under	90 = 174	14 = 68	15.6	76 = 106	84.4
43 and over	84	58	64.3	30	35.7
TOTAL	200	83 (41.5%)		117 (58.5%)	

Of the 26 women respondents, 15, of which 6 were younger and 9 were older women, felt that employers were prejudiced against the visually impaired professional, while 11, of which 8 were younger and 3 were older women believed that employers were not prejudiced. Of the 68 men, 14 (15.6 percent) younger men and 58 (64.3 percent) older men indicated that employers were prejudiced against the visually impaired professional.

It was found that older women and older men believed that employers were prejudiced. On the other hand, the younger women and men did not feel there was prejudice against the visually impaired professional in the computer industry. It was found that 117 (58.5

percent) of this total group of respondents believed that employers were not prejudiced against the visually impaired professional.

The findings shown in Table 17 related to whether prospective employers would ask an individual that they knew to be visually impaired to come in for an interview. One hundred and ninety-three individuals responded to this item.

Table 17

Employer Responses to Item 17

Item 17: Generally, if prospective employers know a person is blind, they won't ask them to come in for an interview.

Groups	No./Total of Responses	Employer Responses			
		Agree	%	Disagree	%
Women					
35 and under	14 = 26	8 = 13	57.1	6 = 13	42.9
36 and over	12	5	41.7	7	58.3
Men					
42 and under	90 = 167	46 = 76	51.1	44 = 91	48.9
43 and over	77	30	39.0	47	61.0
TOTAL	193	89 (46.1%)		104 (53.9%)	

Sixty percent of those who employ the visually impaired individual (see Table 1) were in agreement with the statement that employers will not ask blind persons in for an interview. Approximately 40 percent of the respondents, even though they did not employ the visually impaired, said that they would ask a visually impaired

individual to come in for an interview.

Eight (57.1 percent) of the 14 younger women felt that a visually impaired professional would not be interviewed if his impairment was known, while 6 (42.9 percent) felt that the impairment would not cause an interview to be cancelled. Five (41.7 percent) of the 12 older women felt an interview would not be granted if the impairment was known, while 7 (58.3 percent) believed that an interview would be granted regardless of the impairment.

Of the younger men, 46 (51.1 percent) believed that an interview would not be granted, while 44 (48.9 percent) of the men felt that the interview would be conducted. Thirty (39.0 percent) of the older men felt that if an impairment were known that an interview would not be obtained by a visually impaired individual, while 47 (61.0 percent) believed that an interview would be obtained.

It was found that younger women and men were in agreement with this statement while older men and women believed that an interview would be held. The general consensus was that if a prospective employer knows that an individual is visually impaired they will interview regardless of the impairment.

The findings shown in Table 18 relate to whether special efforts and considerations would be made to employ the visually impaired computer professional. Two hundred employers responded to this item.

It was found that 20 percent of those who did not

employ the visually impaired were willing to initiate special efforts to bring the visually impaired computer professional into their organization. Furthermore, it was found that those respondents who employ the visually impaired and those employers who expressed an interest in employing them (see Table 1) scored about 80 percent in favor of making special efforts to hire the visually impaired.

Table 18

Employer Responses to Item 18

Item 18: A special effort to hire a blind person would be made in my organization.

Groups	No./Total of Responses	Employer Responses					
		Agree		%	Disagree		%
Women							
35 and under	14	= 26	6	= 14	42.9	8	= 12	57.1
36 and over	12		8		66.7	4		33.3
Men							
42 and under	90	= 174	66	= 109	73.3	24	= 65	26.7
43 and over	84		43		51.2	41		48.8
TOTAL	200		123 (61.5%)			77 (38.5%)		

Six (42.9 percent) of the younger women felt that special efforts would be made to hire a blind individual while 8 (57.1 percent) did not believe so. Eight (66.7 percent older women believed that the visually impaired would be hired in their organization, and 4 (33.3 percent) felt that employers would not make any special efforts.

Sixty-six (73.3 percent) younger men and 43 (51.2

percent) older men felt that special efforts to hire a blind individual would be made. Twenty-four (26.7 percent) younger men and 41 (48.8 percent) older men felt that special efforts would not be made to hire the visually impaired into their organizations.

It was found that older women and men of both age groups represented a large proportion of the 61.5 percent who believed that special efforts would be made to employ a visually impaired individual in their organizations.

The findings summarized in Table 19 cover the attitudes of computer employers regarding whether the visually impaired individual can do as good of a job as a sighted individual. Two hundred executives responded to this item.

Table 19

Employer Responses to Item 19

Item 19: A blind person can't really do as good a job in my field as a sighted person.

Groups	No./Total of Responses	Employer Responses			
		Agree	%	Disagree	%
Women					
35 and under	14 = 26	6 = 13	42.9	8 = 13	57.1
36 and over	12	7	58.3	5	41.7
Men					
42 and under	90 = 174	31 = 81	34.4	59 = 93	65.6
43 and over	84	50	59.5	34	40.5
TOTAL	200	94 (47%)		106 (53%)	

It was found that approximately 44 percent of the employers who did not employ the visually impaired (see

Table 1) were contained within the 47 percent who believed that a blind individual could not do as good of a job in the computer field as a sighted individual.

When evaluating the two groups of women, it was found that younger women would be more receptive to the abilities of the visually impaired computer professional than older women. Also, younger men believed that a visually impaired professional could do as well as a sighted individual.

Table 19A shows the number and percentage of employers agreeing to the statement that the blind individual cannot do as well on the job as compared to a sighted person per type of organization. Thirteen, of which 1 (16.7 percent) younger woman and 1 (14.3 percent) older woman were from small organizations, 1 (16.7 percent) younger woman and 2 (28.6 percent) older women represented medium size organizations, and 4 (66.6 percent) younger women and 4 (57.1 percent) older women represented large organizations, 5 (16.1 percent) younger men and 12 (24 percent) older men represented small organizations, 7 (22.7 percent) younger and 13 (26 percent) older men represented medium size organizations and 19 (61.2 percent) younger men and 25 (50 percent) older men represented large size organizations. It was found that 52 (55.3 percent) of the respondents representing the larger computer organizations felt that a visually impaired individual could not do as well on the job as a sighted individual.

Table 19A

Responses by Size of Organization--Agree

Groups	No./Total of Responses	Size of Organization					
		Small	%	Medium	%	Large	%
Women							
35 and under	6 = 13	1 = 2	16.7	1 = 3	16.7	4 = 8	66.6
36 and over	7	1	14.3	2	28.6	4	57.1
Men							
42 and under	31 = 81	5 = 17	16.1	7 = 20	22.7	19 = 44	61.2
43 and over	50	12	24.0	13	26.0	25	50.0
TOTAL	94	19 (20.2%)		23 (24.5%)		52 (55.3%)	

Table 19B shows the number of employers disagreeing with the statement by the type of organization. Forty-six (43.4 percent) from small organizations believed that a visually impaired individual could so as good a job in the computer field as a sighted individual. These small organizations consist of 8 (62.5 percent) younger women, 3 (60 percent) older women, 29 (49.2 percent) younger men and 9 (26.5 percent) older men. A total of 31 (29.2 percent) of employers, of which 2 (25 percent) were younger women, 1 (20 percent was an older woman, 18 (30.5 percent) were younger men and 10 (29.4 percent) were older men represented medium size organizations. Twenty-nine (27.4 percent) represents the total number of executives in large organizations. This total consists of 1 (12.5 percent) younger woman, 1 (20 percent) older woman, 12 (20.3 percent) younger men and 15 (44.1 percent) older men.

The findings shown in Table 19B indicated that men and women of small computer organizations consisting of 46 (43.4 percent) employers were likely to feel that a visually impaired inidividual can do as well on a job as the sighted individual.

The findings presented in Table 20 cover whether or not computer employers thought that special help, in the form of office orderliness, or special consideration, would be needed around an office where a blind individual was employed. This special consideration would consist of such things as the enlargement of bathroom stalls if a wheel

Table 19B

Responses by Size of Organization--Disagree

Groups	No./Total of Responses	Size of Organization					
		Small	%	Medium	%	Large	%
Women							
35 and under	8 = 13	5 = 8	62.5	2 = 3	25.0	1 = 2	12.5
36 and over	5	3	60.0	1	20.0	1	20.0
Men							
42 and under	59 = 93	29 = 38	49.2	18 = 28	30.5	12 = 27	20.3
43 and over	34	9	26.5	10	29.4	15	44.1
TOTAL	106	46 (43.3%)		31 (29.2%)		29 (27.4%)	

chair is involved, clear hallways or passageways, and developing effective means of communicating to the visually impaired individual, when danger or obstructions were evident. Two hundred employers replied to this item.

Table 20

Employer Responses to Item 20

Item 20: Special help or consideration would be needed for a blind person, in the office where I work.

Groups	No./Total of Responses	Employer Responses			
		Agree	%	Disagree	%
Women					
35 and under	14 = 26	10 = 19	71.4	4 = 7	28.6
36 and over	12	0	75.0	3	25.0
Men					
42 and under	98 = 174	52 = 106	57.8	38 = 68	42.2
43 and over	84	54	64.3	30	35.7
TOTAL	200	125 (62.5%)		75 (37.5%)	

Ten (71.4 percent) of the younger women respondents felt that special help or consideration would not be needed for a blind individual in the work environment. Nine (75 percent) of the older women felt that special consideration would have to be made, and 3 (25 percent) felt that blind individuals would not need such special consideration.

Of the 98 younger men, 52 (57.8 percent) felt that special help would have to be given to blind employees, while 38 (42.2 percent) did not feel that special help would be necessary. Fifty-four (64.3 percent) of the

older men felt that special help would have to be given to the visually impaired, while 30 (35.7 percent) felt that special help or consideration was not necessary.

It was found that 125 (62.5 percent) of the 200 respondents felt that special help or consideration would be needed for a visually impaired individual in the office environment.

Fifty-seven percent of the employers who did not employ the visually impaired (see Table 1) expressed the attitude that if a visually impaired professional was employed within their computer organizations, special help and special consideration would be made. These employers would take every possible precaution to protect the visually impaired computer professional. Ten percent of those computer employers who already employ the visually impaired also fell within the 125 (62.5 percent) favorable responses presented. Furthermore, 85 percent of the employers who employ the visually impaired believed that if any, only a small amount of help was needed by most of the visually impaired in their work environments (see Table 1). The respondents commented that this would entail more of a training procedure for the sighted individuals, i.e., keeping hallways clear and notifying the visually impaired when furniture was rearranged.

The findings shown in Table 21 illustrate how the computer industry would handle a procedural situation which might be a cause of possible disciplinary action towards

the visually impaired individual. It was the intention here to determine if managers would be inclined to differentiate between the kind of possible disciplinary action taken towards a sighted and a visually impaired computer professional. Two hundred executives responded to this item.

Table 21

Employer Responses to Item 21

Item 21: A blind person would be most likely fired for making the same mistakes as a sighted person.

Groups	No./Total of Responses	Employer Responses					
		Agree		%	Disagree		%
Women							
35 and under	14	= 16	5	= 10	35.7	9	= 16	64.3
36 and over	12		5		41.7	7		58.3
Men							
42 and under	90	= 171	6	= 41	6.7	84	= 133	93.3
43 and over	84		35		41.7	49		58.3
TOTAL	200		51 (25.5%)			149 (74.5%)		

It was found that 5 (35.7 percent) of the younger women felt that a visually impaired individual would be fired for making the same mistakes as a sighted individual while 9 (64.3 percent) of these women felt that a visually impaired individual would not be fired. Five (41.7 percent) of the older women felt that disciplinary action would be taken against the visually impaired for making the same mistakes as a sighted individual, and 7 (58.3

percent) felt that this would not be the case.

Forty-one male respondents, consisting of 6 (6.7 percent) younger men and 35 (41.7 percent) older men felt that visually impaired individuals would be fired for making the same mistakes as sighted individuals, while 84 (93.3 percent) younger men and 49 (58.3 percent) older men did not think so.

Furthermore, it was found that 75 percent of the employers who employ the visually impaired and 45 percent of those who did not employ the visually impaired (see Table 1) believed that an individual would not be removed for making the same types of mistakes as a sighted individual.

The results shown in Table 22 relate to employers' attitudes toward policy violations by the visually handicapped, in terms of possible changes to accommodate such professionals. Two hundred employers responded to this item.

Those managers who employ the visually impaired (see Table 1) responded in agreement with the general consensus on this item, that is, that no special consideration would be shown. Executives who did not employ the visually impaired expressed a more lenient opinion in that these employers believed that admonishment would be generally less stringent and dependent upon the type of impairment.

Two (14.3 percent) of the younger women felt that a visually impaired individual would be less likely to be

reprimanded for policy violations, while 12 (85.9 percent) women of this group believed that no special treatment would be given in such cases. Two (16.7 percent) of the older women felt that blind employees would be less likely to be reprimanded for policy violations, and 10 (83.3 percent) of the older women felt that the visually impaired would receive no special consideration in this regard.

Table 22

Employer Responses to Item 22

Item 22: Blind employees are less likely to be reprimanded for policy violation.

Groups	No./Total of Responses	Employer Responses					
		Agree		%	Disagree		%
Women							
35 and under	14 = 26	2 = 4		14.3	12 = 22		85.7
36 and over	12	2		16.7	10		83.3
Men							
42 and under	90 = 174	31 = 66		34.4	59 = 108		65.6
43 and over	84	35		41.7	49		58.3
TOTAL	200	70 (30%)			130 (65%)		

Thirty-one (34.4 percent) of the younger men and 35 (41.7 percent) of the older men believed that the visually impaired employee would be less likely to be reprimanded for policy violations. On the other hand, 59 (65.6 percent) of the younger men and 49 (58.3 percent) of the older men felt that blind employees would be just as likely to be reprimanded for policy violations.

In summary it was found that 130 (65.0 percent) of the total respondents would reprimand a visually impaired individual for policy violations in the same manner as they would a sighted individual.

Table 23 summarizes findings regarding employer attitudes towards altering the performance evaluation system to accommodate the visually impaired individual. A total of two hundred employers responded to this item.

Table 23

Employer Responses to Item 23

Item 23: The performance evaluation system should be made more lenient for blind persons.

Groups	No./Total of Responses	Employer Responses: Agree	%	Disagree	%
Women					
35 and under	14 = 26	2 = 8	14.3	12 = 20	85.7
36 and over	12	4	33.3	8	66.7
Men					
42 and under	90 = 174	26 = 64	28.9	64 = 110	71.1
43 and over	84	38	45.2	46	54.8
TOTAL	200	70 (35%)		130 (65%)	

Of the 70 (35 percent) individuals who responded to this statement those that felt the performance evaluation system should be made more lenient for visually impaired individuals included 6 women of which 2 were younger and 4 were older, and 64 men consisting of 26 younger and 38 older men. Those individuals who felt that the performance evaluation system should not be more lenient for visually

impaired individuals included 130 employers, of which 12 were younger women, 8 were older women, 64 were younger men and 46 were older men.

It was found that the general consensus of this item was that men and women of both age groups believed the performance evaluation system should not be changed to accommodate the visually impaired professional.

Eighty-nine percent of those employers who employ the visually impaired computer professional (see Table 1) indicated that they frowned upon preferential treatment. They also believed that the impaired professional rejects such unequal treatment. The 59.4 percent who did not employ the visually impaired (along with those who employ the visually impaired) believed that the performance evaluation is a basic tool used by management to evaluate employee performance, as well as a means of advising the employee of his/her shortcomings and promotion potentials. Therefore, any altering of the system could effect productivity within the organization.

The findings presented in Table 24 reflected the impressions of employers regarding work ability expectations for the visually impaired as compared to the sighted worker. A total of two hundred employers answered this item.

It was found that those who employ the visually impaired (see Table 1) represented 46 percent of those individuals who felt that supervisors would not expect as

much from a visually impaired professional. The responses of those who did not employ the visually impaired demonstrated no particular patterns relative to this statement.

Table 24

Employer Responses to Item 24

Item 24: Supervisors would not expect as much of a blind person as they should from sighted co-workers.

Groups	No./Total of Responses		Employer Responses			
			Agree	%	Disagree	%
Women						
35 and under	14	= 26	3	21.4	11	78.6
36 and over	12		3 = 6	25.0	9 = 20	75.0
Men						
42 and under	90	= 174	40	44.4	50	55.6
43 and over	84		41 = 81	48.8	43 = 93	51.2
TOTAL	200		87 (43.5%)		113 (56.5%)	

Of the total 26 women respondents, of which 3 (21.4 percent) were younger women and 3 (25 percent) were older women felt that supervisors would not expect as much from a visually impaired individual as they would from a sighted individual. Eleven (78.6 percent) younger women and 9 (75 percent) older women felt equal expectations exist for the visually impaired professional and the sighted co-worker. Eighty-one males, consisting of 40 (44.4 percent) younger and 41 (48.8 percent) older men indicated that a supervisor would not expect as much of a blind computer professional, while 50 (55.6 percent) younger men and 43 (51.2 percent) older men indicated that this would not be the case. It

was found that of the 200 total respondents, 113 (56.5 percent) believed that a supervisor would expect the same quality and/or quantity from each subordinate regardless of the handicap as compared to 87 (43.5 percent) who would not.

Table 24A shows the number of respondents agreeing to this item by size of organization. Of the 20 (23 percent) from small organizations, only 33.3 percent were women, 25 percent were younger men and 22 percent were older men. Of the 24 (27.6 percent) from medium size organizations, 33.3 percent were younger women, 100 percent were older women, 32.5 percent were younger men and 17.1 percent were older men. Forty-three (49.4 percent) represented large organizations. Of these only 33.3 percent were women, 42.5 percent were younger men and 60.9 percent were older men. It was found that employers from large organizations generally felt that supervisors would not expect the same level of job performance from the visually impaired as they would from sighted co-workers.

Table 24B shows the number of disagreeing respondents by size of organization. Of the total number of respondents in small organizations 8 were women and 41 were men, and of those in medium size organizations 7 were women and 26 were men. Thirty-seven employers represented large size organizations, which consisted of 5 women and 32 men. It was found that older men representing small size organizations generally believed that supervisors should

Table 24A

Responses by Size of Organization--Agree

Groups	No./Total of Responses	Size of Organization					
		Small	%	Medium	%	Large	%
Women							
35 and under	3 = 6	1 = 1	33.3	1 = 4	33.3	1 = 1	33.3
36 and over	3	0	0	3	100.0	0	0
Men							
42 and under	40 = 81	10 = 19	25.0	13 = 20	32.5	17 = 42	42.5
43 and over	41	9	22.0	7	17.1	25	60.9
TOTAL	87	20 (23%)		24 (27.6%)		43 (49.4%)	

Table 24B

Responses by Size of Organization--Disagree

Groups	No./Total of Responses	Size of Organization					
		Small	%	Medium	%	Large	%
Women							
35 and under	11	6	54.5	2	18.2	3	27.3
36 and over	9 = 20	2 = 8	22.2	5 = 7	55.6	2 = 5	22.2
Men							
42 and under	50	11	20.0	14	28.0	25	50.0
43 and over	43 = 93	30 = 41	69.8	6 = 26	14.0	7 = 32	16.2
TOTAL	113	49 (43.4%)		27 (23.9%)		37 (32.7%)	

expect the same level of performance from the visually impaired as they would from their sighted co-workers.

It was found that older males representing small size organizations generally believed that supervisors should expect the same level of performance from the visually impaired as they would from their sighted co-workers.

The findings shown in Table 25 concern the attitudes of computer executives towards the visually impaired engaging in professional and technical work. Responses were received from 164 computer industry managers.

Table 25

Employer Responses to Item 25

Item 25: Most people do not think blind people should be in professional or technical work.

Groups	No./Total of Responses	Employer Responses			
		Agree	%	Disagree	%
Women					
35 and under	14 = 26	9 = 15	64.3	5 = 10	35.7
36 and over	12	7	58.3	5	41.7
Men					
42 and under	90 = 138	27 = 41	30.0	63 = 97	70.0
43 and over	48	14	29.2	34	70.8
TOTAL	164	57 (34.8%)		107 (65.2%)	

Those executives who did not employ the visually impaired professional and who did not wish to employ the visually impaired (see Table 1) responded 70 percent in favor with the statement that individuals should not

engage in technical work. In contrast, it was found that 95 percent of those executives employing the visually impaired regarded these individuals as professionals and saw them as assets to the profession.

Nine younger women responded favorably to this statement, while 5 (35.7 percent) believed that visually impaired individuals should be in professional and technical work. Seven (58.3 percent) older women did not feel that visually impaired individuals should be in the professional or technical fields. Of the remaining older women, 5 (41.7 percent) believed that a visually impaired individual should be in professional or technical work.

Twenty-seven (30 percent) of the younger men felt that professional or technical work was the best employment for the visually impaired, while 63 (70 percent) felt that the visually impaired should not enter these fields of work. Fourteen (29.2 percent) older men felt that the visually impaired should not be employed in their areas, while 34 (70.8 percent) felt that a visually impaired individual should be in professional or technical work.

It was found that men of both age groups generally felt that the visually impaired individual should be in technical or professional types of employment, while women respondents felt that the visually impaired should not be in professional or technical work. Findings indicate that 107 (65.2 percent) of employer opinion was that the visually impaired individual should be in professional or

technical work.

Table 26 summarizes the findings regarding employer responses to the following statement: Once a blind individual is on the job a few months, they would not have any difficulties getting around my office. Two hundred executives responded to this item.

It was found that those executives employing the visually impaired professional (see Table 1) agreed that once a visually impaired individual is on the job a few months, they would not have any difficulty getting around. Approximately 48 percent of those executives who did not employ the visually impaired responded in the same manner.

Table 26

Employer Responses to Item 26

Item 26: Once a blind person is on the job a few months, they would not have any difficulties getting around in my office.

Groups	No./Total of Responses	Employer Responses: Agree	%	Disagree	%
Women					
35 and under	14 = 26	8 = 17	57.1	6 = 9	42.9
36 and over	12	9	75.0	3	25.0
Men					
42 and under	90 = 174	63 = 117	70.0	27 = 57	30.0
43 and over	84	54	64.3	30	35.7
TOTAL	200	134 (67%)		66 (33%)	

Eight (57.1 percent) younger women and 9 (75 percent) older women felt that a visually impaired professional

would not have any difficulty getting around the work environment. Six (42.9 percent) younger women and 3 (25 percent) older women felt that a visually impaired professional would have problems moving around the work environment.

Of the 174 men respondents, 63 (70 percent) younger men and 54 (64.3 percent) older men felt that a visually impaired professional would not have any movement difficulties within the work environment. The remaining 57 men believed that a visually impaired individual would find movement around the work setting difficult. Twenty-seven (30 percent) of these were young men and 30 (35.7 percent) were older men.

The findings indicated that 134 (67 percent) of the 200 respondents felt that after a short period of time a visually impaired individual would have no difficulties getting around the work environment.

The findings shown in Table 27 relate to whether employers were making an attempt to locate qualified visually impaired individuals to work in the computer field. A total of 200 employers responded to this item.

Fifteen women felt that they would go out of their way to hire a visually impaired computer professional. These women consisted of 9 (64.3 percent) younger women and 6 (50 percent) older women. Eleven of the remaining women respondents said that they would not go out of their way to employ a visually impaired professional. This group

consisted of 5 (35.7 percent) younger women and 6 (50 percent) older women. It was found that 50 percent of the older women would go out of their way to hire a visually impaired professional, while the remaining 50 percent would not.

Seventy-four men responded that they would go out of their way to find employment for the visually impaired computer professional, of which 35 (38.9 percent) were younger men and 39 (46.4 percent) were older men. One hundred men stated that they would go out of their way to hire a visually impaired professional. This group of men consisted of 55 (61.1 percent) younger men and 45 (53.6 percent) older men.

Table 27

Employer Responses to Item 27

Item 27: I would go out of my way to hire a blind person to work in my field.

Groups	No./Total of Responses	Employer Responses					
		Agree		%	Disagree		%
Women							
35 and under	14	9	= 15	64.3	5	= 11	35.7
36 and over	12 = 26	6		50.0	6		50.0
Men							
42 and under	90	35	= 74	38.9	55	= 100	61.1
43 and over	84 = 174	39		46.4	45		53.6
TOTAL	200	89 (44.5%)			111 (55.5%)		

The findings indicated that 111 (55.5 percent) of the employers would not go out of their way to employ a

visually impaired individual in the computer field as compared to 89 (44.5 percent) who would.

Table 27A shows the number of executives who would go out of their way to employ the visually impaired by size of organization. Thirty-nine (43.8 percent) of these executives represented small organizations. Seven of these were women and 32 were men. Six women and 24 men who represented medium size organizations also stated that they would go out of their way to hire a visually impaired professional. Of the large organizations, 2 employers were women and 8 were men who would go out of their way to employ a visually impaired individual.

The findings shown in Table 27A generally indicated that smaller computer organizations, 29 (43.8 percent) would be most likely to go out of their way to employ the visually impaired computer professional.

Table 27B shows the number of employers who would not go out of their way to employ the visually impaired by size of organization. Nineteen were from small organizations. Of these, 2 were women and 17 were men. Thirty-two (28.8 percent) in this group represented medium size organizations, of which 2 were women and 30 were men. Of the 60 (54.1 percent) employers representing large organizations, 7 were women and 53 were men.

The findings indicated that large computer organizations representing 60 (54.1 percent) of the executives were least likely to go out of their way to employ a

Table 27A

Responses by Size of Organization--Agree

Groups	No./Total of Responses	Size of Organization					
		Small	%	Medium	%	Large	%
Women							
35 and under	9	6	66.7	2	22.2	1	11.1
36 and over	6 = 15	1 = 7	16.7	4 = 6	66.6	1 = 2	16.7
Men							
42 and under	35	13	37.1	12	34.3	10	28.6
43 and over	39 = 74	19 = 32	48.7	12 = 24	30.8	8 = 18	20.5
TOTAL	89	39 (43.8%)		30 (32.7%)		20 (22.5%)	

Table 27B

Responses by Size of Organization--Disagree

Groups	No./Total of Responses	Size of Organization					
		Small	%	Medium	%	Large	%
Women							
35 and under	5 = 11	1 = 2	20.0	1 = 2	20.0	3 = 7	60.0
36 and over	6	1	16.7	1	16.7	4	66.6
Men							
42 and under	55 = 100	8 = 17	14.5	17 = 30	31.0	30 = 53	54.5
43 and over	45	9	20.0	13	28.9	23	51.1
TOTAL	111	19 (17.1%)		32 (28.8%)		60 (54.1%)	

visually impaired individual. The findings also indicated that 100 percent of those employing the visually impaired professional (see Table 1) said that they definitely would go out of their way to hire other visually impaired professionals. On the other hand, 35 percent of those who did not employ the visually impaired indicated that they would go out of their way to hire the visually impaired professional.

The findings shown in Table 28 illustrate the attitudes of computer industry employers towards co-worker treatment of the visually impaired professional. A total of 200 employers responded to this item.

Table 28

Employer Responses to Item 28

Item 28: After the first few weeks, my co-workers probably won't treat a blind person any differently than they would any other colleague.

Groups	No./Total of Responses	Employer Responses			
		Agree	%	Disagree	%
Women					
35 and under	14 = 26	12 = 21	85.7	2 = 5	14.3
36 and over	12	9	75.0	3	25.0
Men					
42 and under	90 = 174	58 = 98	64.4	32 = 76	35.6
	84	40	47.6	44	52.4
TOTAL	200	119 (59.5%)		81 (40.5%)	

It was found that 67.5 percent of those employers employing the visually impaired professional (see Table 1)

felt that other employees' treatment of a visually impaired individual would not differ from their treatment of a sighted co-worker. The remaining 32.5 percent who did not employ visually impaired individuals felt that sighted co-workers would treat visually impaired professionals differently from their colleagues.

Twelve (85.7 percent) younger women and 9 (75 percent) older women felt that sighted co-workers would not treat the visually impaired individual differently, while 2 (14.3 percent) younger women and 3 (25 percent) older women felt that sighted co-workers would differ in their treatment of the visually impaired professional. Of the 174 male respondents, 58 (64.4 percent) younger men and 40 (47.6 percent) older men felt that sighted co-workers would not treat a visually impaired individual differently; while 32 (35.6 percent) of the younger men and 44 (52.4 percent) of the older men felt that visually impaired co-workers would be treated differently.

The findings shown in Table 28 indicated that 119 (59.5 percent) of the respondents felt that sighted co-workers would not treat a visually impaired professional any differently as compared to other colleagues.

The findings shown in Table 29 illustrate the attitudes of the employers within the computer industry as to whether the visually impaired would receive lower salaries than sighted individuals in the same field. A total of 146 individuals responded to this item.

Of those employers who did employ the visually impaired 50 percent commented that they did hire the visually impaired in at a lower salary on a probationary basis. These executives further commented that once established within the organization, the visually impaired advanced rapidly. No specific patterns of response on this item were found for these employers.

Table 29

Employer Responses to Item 29

Item 29: A blind person would probably receive a lower salary than a sighted person in my field.

Groups	No./Total of Responses	Employer Responses					
		Agree		%	Disagree		%
Women							
35 and under	14	= 26	4	= 8	28.6	10	= 18	71.4
36 and over	12		4		33.3	8		66.7
Men							
42 and under	90	= 120	14	= 37	15.9	76	= 83	84.4
43 and over	30		23		76.7	7		23.3
TOTAL	146		45 (30.8%)			101 (69.2%)		

Of the 26 women respondents, 4 (28.6 percent) younger women and 4 (33.3 percent) older women felt that a visually impaired individual would receive a lower salary; while 10 (71.4 percent) younger women and 8 (66.7 percent) older women felt that a visually impaired professional would not receive a lower salary. Of the 120 male respondents, 14 (15.6 percent) younger men and 23 (76.7 percent) older men felt that the visually impaired professional

would receive a lower salary; while 76 (84.4 percent) younger men and 7 (23.3 percent) older men felt that a visually impaired individual would receive the same salary as a sighted individual.

The findings shown in Table 29 indicate that, of the 146 respondents, 45 (30.8 percent) felt that a lower salary would be given to a visually impaired professonal; while 101 (69.2 percent) of the respondents felt that a visually impaired professional would not receive a lower salary than a sighted individual working in the computer field.

Table 30 summarizes findings concerning whether or not a seeing-eye dog would be able to stay with the visually impaired individual within the work environment. Two hundred employers responded to this item.

Table 30

Employer Responses to Item 30

Item 30: A seeing eye dog, if necessary, would be able to remain with the blind person, in my organization.

Groups	No./Total of Responses	Employer Responses			
		Agree	%	Disagree	%
Women					
35 and under	14 = 26	10 = 27	71.4	4 = 9	28.6
36 and over	12	17	58.3	5	41.7
Men					
42 and under	90 = 174	55 = 88	61.1	35 = 86	38.9
43 and over	84	33	39.3	51	60.7
TOTAL	200	105 (52.5%)		95 (47.5%)	

Of the 17 women respondents who felt that a seeing-eye dog would be able to remain in the work environment, 10 (71.4 percent) were younger women and 7 (58.3 percent) were older women. Of the 9 who felt that a seeing eye dog would not be able to stay with the visually impaired individual, 4 (28.6 percent) were younger women and 5 (41.7 percent) were older women.

Of the 174 male respondents, 55 (61.1 percent) younger men and 33 (39.3 percent) older men felt that a seeing-eye dog could stay in the work environment; while 35 (38.9 percent) younger men and 51 (60.7 percent) older males felt that a seeing-eye dog would not be allowed to stay with the visually impaired professional in the work environment.

It was found that 105 (52.5 percent) of the respondents felt that a seeing-eye dog would be allowed to remain in the work setting, while 95 (47.5 percent) did not feel that the dog should be allowed to remain there.

Table 31 summarizes employers' attitudes concerning a visually impaired professional's ability to instruct courses in the computer field. Two hundred respondents answered this item.

It was found that 37 percent of the 40.6 percent who did employ the visually impaired in the computer industry (see Table 1), expressed the opinion that the visually impaired individual would be an asset in the capacity of instructor. The remaining 3.6 percent of the employers

expressed disagreement with this item. Forty percent of those individuals who did not employ the visually impaired (see Table 1) felt that a visually impaired individual could not be used as an instructor in the computer industry.

Table 31

Employer Responses to Item 31

Item 31: A blind person can be used as an instructor in my profession.

Groups	No./Total of Responses	Employer Responses			
		Agree	%	Disagree	%
Women					
35 and under	14 = 26	9 = 15	64.3	5 = 11	35.7
36 and over	12	6	50.0	6	50.0
Men					
42 and under	90 = 174	67 = 126	74.4	23 = 48	25.6
43 and over	84	59	70.2	25	29.8
TOTAL	200	141 (70.5%)		59 (29.5%)	

Of the 26 women respondents, 9 (64.3 percent) younger women and 6 (50 percent) older women felt that a visually impaired individual could function as an instructor; while 5 (35.7 percent) younger women and 6 (50 percent) older women believed that an impaired individual could not serve in the capacity of instructor within the computer profession. Seventy-seven (74.4 percent) younger men and 59 (70.2 percent) older men believed a visually impaired computer professional could function very well as an instructor; while 23 (25.6 percent) younger men and 25

(29.8 percent) older men felt they could not.

The findings indicated that men and women of both age groups, 141 (70.5 percent) of the 200 respondents, believed a visually impaired computer professional could function in the capacity of instructor.

The statement for which the results are presented in Table 32 reflects the third and last consideration facing the computer manager when anticipating the employment of the visually impaired individual: Extra safety requirements for blind employers are too costly for some employers. The fist consideration had to do with difficulties of getting around the work environment (Table 26), and the second consideration had to do with the treatment of the visually impaired individual by their sighted co-workers (Table 28). Table 32 presents the findings regarding the attitudes of employers within the computer industry towards the cost of extra safety requirements needed for visually impaired individuals. A total of 185 respondents answered this item.

It was found that 75 percent of those employing the visually impaired (see Table 1) saw the need for safety requirements for the visually impaired as the same basic safety need of any organization. Of those who did not employ the visually impaired (see Table 1), approximately 65 percent believed that costs for safety requirements would be expensive for some employers.

Of the 16 women respondents who felt that safety requirements were too costly, 10 (71.4 percent) were younger

women and 6 (50 percent) were older women. Of the 10 women who felt that the cost would not be too expensive, 4 (28.6 percent) were younger women and 6 (50 percent) were older women. One half (50 percent) of the older women believed that safety requirements would be too costly, while the remaining 50 percent did not feel that this was true.

A total of 101 believed that safety requirements were too great, of which 57 (63.3 percent) were younger men and 44 (63.8 percent) were older men. Fifty-eight of the men believed that safety requirements were not too costly; 33 (36.7 percent) of these were younger men and 25 (36.2 percent) were older men.

Table 32

Employer Responses to Item 32

Item 32: Extra safety requirements for blind employees are too costly for some employers.

Groups	No./Total of Responses	Employer Responses: Agree	%	Disagree	%
Women					
35 and under	14 = 26	10 = 16	71.4	4 = 10	28.6
36 and over	12	6	50.0	6	40.0
Men					
42 and under	90 = 159	57 = 101	63.3	33 = 58	36.7
43 and over	69	44	63.8	25	36.2
TOTAL	185	117 (63.2%)		68 (36.8%)	

It was found that of the 185 men and women respondents to this item, 117 (63.2 percent) believed that extra safety requirements for visually impaired employers would

be too costly for some employers.

Other Data Pertaining to the Study

Due to the incompleteness of some of the questionnaires, the variables of marital status, education and number of employers were not discussed. Furthermore, the geographic location was not considered since the questionnaire was distributed only in the Southern California area. However, the education variable proved to be most interesting because of the diversity of degrees found. This diversity consists of the following degrees: Associate of Arts, Master of Arts, Bachelor of Science, Master of Science, Master of Computer Science, Master of Business Administration, Doctor of Business Administration and a Doctor of Law--JD.

It was found that of the total of two hundred respondents the larger portion of employers had received no formal education beyond the community college level and on-the-job training. It was also found that women in this field possessed primarily the degrees of Bachelor of Science and Master of Business Administration. The men, on the other hand, held more Master of Computer Science and Business Administration degrees than the women. The men held all the doctoral degrees.

Summary

This study was designed to provide basic information with respect to the nature of attitudes held by employers in the computer profession concerning the employment of visually impaired individuals. Within this framework, the data yielded unique insights into the attitudes of employers toward professionally trained computer individuals who happen to be blind, and into the effects that these attitudes may have upon the standards that are used by executives in evaluating a visually impaired computer professional and their decision-making processes.

The data suggested that the computer executive does not distinguish between the visually impaired professional and other individuals who are physically or otherwise impaired. These findings can with little change be applied to paraplegics, cerebral palsy victims, and the like. Thus this analysis suggests that the visually impaired professional applicant is viewed by executives as a category of impaired workers in general, rather than as a unique group.

Chapter 5

SUMMARY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

The chapter presents a digest of attitudes concerning visually impaired individuals seeking employment in the computer industry. The areas presented are the summary, conclusions, implications and recommendations.

Summary

This study focused on problems encountered by visually impaired individuals seeking employment in the computer industry. The study was primarily concerned with the attitudes of employers who may have had preconceived notions, unfortunate past experiences, and/or lack of knowledge concerning the progress made by modern scientific technology in bridging work skills of the handicapped population.

The use of the computer has shown great promise for expanding educational and occupational opportunities for the visually impaired individual. There is evidence that the visually impaired individual can make major contributions through computer technology in business, education, and research. The greatest obstacle to achieving these goals is simply obtaining employment. The attitude of

business has been negative toward the handicapped. Understanding between the employer and the handicapped has been inadequate.

Two hundred employees served as the source of data in this attitudinal study. Subjects were selected from small, medium and large computer organizations located in the Southern California area. These subjects included computer professional Naval personnel, Federal and City Civil Service employees, and private industry employees. Thirty-two questions were asked in the questionnaire survey.

A variety of employers were interviewed assessing their attitudes and knowledge regarding employing the visually impaired professional in the computer industry. Information received from the California State Rehabilitation Department emphasized the fact that employers responded to impairments in terms of specific types rather than in a generalized manner and that there was an established hierarchy of preference. Furthermore, the market stimulus value of impairments indices varied in their effects on productivity evaluations, and some types of impairments were viewed more negatively than others. Employers seem to reach consistently to interactions between type of impairment and the type of job involved.

Conclusions

The results of this study provided basic data concerning whether the visually impaired individual through

the utilization of modern technological teaching methods could perform technical and professional jobs in a work-a-day environment.

This study not only provided basic data through which other problems of employing visually impaired individuals may be explored, but it also provided information regarding both peripheral and immediate problems which the visually impaired individual might encounter as a result of company policies set by executives.

The major conclusions of this study were as follows:

1. Fifty-five percent of computer executives surveyed believed the visually impaired computer professionals must have qualifications superior to those of sighted individuals before being considered employable (Table 13).

2. Forty-three percent of the employers expected less from visually impaired computer professionals than from sighted computer professionals (Table 24).

3. A majority of employers indicated that visually impaired professionals would not receive preferential treatment in regard to performance evaluation and discipline imposed for policy violations (Tables 22 and 23).

4. Of the two-hundred respondents 55.5 percent would go out of their way to employ the visually impaired individual (Table 27).

5. Based on the accumulation of scores tallied from all items, it was found that, of the total respondents,

women over 35 years of age and men under 42 years of age were more favorable toward employing the visually impaired computer professional than younger women and older men.

6. Sixty-five percent of the executives did not think that visually impaired individuals should be in professional or technical positions at all (Table 25).

The employer's uncertainty toward employing a visually impaired individual can be a way of minimizing employment risk. This probabilistic belief, coupled with uncertainty and preconceived ideas concerning the functional ability of certain handicapped groups, affects the rationale of the employer and often caused negative sensitivity.

Lack of familiarity or experience with the handicapped on the part of prospective employers can lead to increased uncertainty in interpreting market signals and the impairment index itself. The tendency to see an applicant as a group member rather than as an individual may tend towards a reliance on negative stereotypes. If an employer's tendency to view applicants with impairments is not stereotyped, relative uncertainty due to lack of experience may become a factor and inhibit hiring.

This study showed that the computer industry fosters cautious attitudes toward hiring visually impaired computer professionals. It is these attitudes which are the impediments which have obstructed the visually impaired individual's entrance into the computer field.

Implications

The California State Department of Rehabilitation and various other national services interested in the employability of the visually impaired U.S. citizen are aware of the annual increase in the number of such handicapped individuals. This increase has been caused by various reasons, some of which are the after-effect of military involvement, home accidents, vehicle accidents, birth defects, disease, and various other undetermined medical situations.

This relatively large segment of the society could be made a partially self-supporting entity within the local and national labor markets. The employers' behavior and attitudes indicated that little was actually known on how best to utilize the visually impaired individuals within various organizations. Approximately 75 percent of the respondents were unaware that visually impaired computer professionals were employable and available.

Although it was accepted that visually impaired individuals had no difficulty getting around an office and that co-worker acceptability was excellent, implications indicate nevertheless that there is an enormous amount of resistance to the employment of the visually impaired individual from numerous computer executives.

A lack of knowledge concerning effective and efficient job-search methods and the expectation of negative employer attitudes on the part of the visually impaired

can all serve to reduce search activity, and thus the supply of labor.

It is generally lack of knowledge which leads a prospective employer to overestimate the cost of hiring and employing individuals with disabilities. Employers with less experienced-based certainty need to assess the magnitude of an applicant's work disability as well as the cost of any responses that the employing organization may be called on to make. It may well be that the hiring decision tends to be a conservative decision, and that the lack of probable knowledge about the circumstances of disability and the productivity of individuals with impairments leads to a general avoidance of hiring. The factor of discrimination caused by cultural, company, and personal factors tend to attach values, at potentially high levels of certainty, to various signals and indices of individuals with impairments.

Other areas of implications determined during the analysis of the study, as applied through the review of literature, indicated there were limited work theories available.

On the basis of the survey, some employers showed new interest in employing the visually impaired. As a follow-up to the study, several agencies for the visually impaired have been placed in contact with prospective employers.

Recommendations

As a result of the conclusions of this study the following steps are recommended:

1. Research should be continued towards determining the causes of unfavorable attitudes on the part of employers concerning the employment of a visually impaired individual.

2. A methodology must be designed to defuse stereotypical behavior among employers. Perhaps through awareness training employers may begin to provide greater employment opportunities for visually impaired individuals.

3. Various criteria must be included in the area of rehabilitation to determine how to best utilize a visually impaired individual's abilities and potentials.

4. A demographic placement service should be developed to determine the areas where visually impaired individuals could best fit into the labor or defense job market.

5. Executive training should be provided for employers on how to best utilize the expertise of the visually impaired individual, so as to avoid the tragedy of their expending energy and time training for a position only to be unable to find employment. It is in this area that the assistance of a well organized placement service for the visually impaired computer professional can make a lasting contribution.

6. There seems to be a real need for a study of the communication process which operates between employers and those agencies involved in the training and placement of visually impaired professionals. The prospective employer must be effectively reached with facts, and the rehabilitation field must be made clearly cognizant of what employers will and will not accept from an employee. More must be known about how the visually impaired professional fits into the expectation structure of employers.

7. A methodology must be developed for the full utilization of skills and abilities of the visually impaired in the computer industry.

8. Records should be made available of those visually impaired computer professionals who have successfully been employed in the computer field. An in-depth historical work background and proposed employment guidelines are deemed necessary to enhance further understanding of executives toward the capabilities of the visually impaired computer professional.

APPENDICES

APPENDIX A

EMPLOYERS' ATTITUDES TOWARDS DISABILITIES

Table 1

Positive or Negative Attitudes Towards Disabilities Among Various Samples Tested with the Attitude-Behaviors Scale

Facets of A-B Scale with their Referents[a]	Direction of Attitudes to Deafness[b]				
	Inexperienced Subjects			Experienced	Subjects
	Employers	Teachers	Mothers	Teachers	Mothers
I. SOCIAL STEREOTYPE (What people think that others think)	+	+	+	+	+
II. SOCIAL NORM (What they think is the usual thing that society does)	+	+	+	+	+
III. PERSONAL MORAL EVALUATION (What is the right thing to do)	+	+	+	+	+
IV. PERSONAL HYPOTHETICAL ACTION (What I think I would do)	+	+	+	+	+
V. PERSONAL FEELING (What I actually feel or felt in a given situation)	+	+	+	+	+
VI. PERSONAL ACTION (What I actually did in a given situation)	+	+	+	-	-

[a]Source: Jordan (1970, 1971).

[b]Source: Paulos (1970).

Table 2

A Hierarchy of Impairment Types as Measured by the Disability Social Distance Scale

Disability	Mean Score	Disability	Mean Score
ulcer	.5183	paraplegic	.9066
arthritis	.5295	epilepsy	.9178
asthma	.5344	dwarf	.9239
diabetes	.5531	cerebral palsy	.9482
heart disease	.6358	hunchback	.9702
amputee	.6772	tuberculosis	.9719
blindness	.6969	ex-convict	1.2656
deafness	.7105	mental retardation	1.2713
stroke	.7275	alcoholism	1.3904
cancer	.8062	mental illness	1.4194
old age	.8130		

(N = 455)

Scoring Key: Scale Values of Social Distance Items

Item Statement	Scale Values
would marry	0.33
would accept as close kin by marriage	.57
would have as a next door neighbor	.85
would accept as a casual friend	1.06
would accept as a fellow employee	1.21
would keep away from	2.95
would keep in an institution	3.14
would send out of my country	3.65
would put to death	4.69

Source: Tringo (1970).

Table 3

Percent of Variance by Factors Influencing Employment Ratings of Various Disability Groups by Personnel Directors (N=18)

Source	Ex-T.B. Patients	Deaf	Wheelchair	Ex-Mental Patients	Epileptics	Prison Parolees
Competence	50.5	44.7	43.5	43.2	35.6	43.4
Disability	.9	7.4	5.8	7.6	17.3	8.2
Sex	.1	.2	.1	.5	.1	.3
Sociability	7.4	6.0	7.5	7.1	4.8	5.4
Interaction	3.1	5.1	6.0	5.3	7.9	5.4
Within Cells	37.9	36.6	37.0	36.2	34.2	37.3
TOTAL VARIANCE	100.0	100.0	100.0	100.0	100.0	100.0

Source: Rikard, Triandis, and Patterson (1963).

Table 4

Percent of Employers Who Have or Would Hire: By Type of Impairment

Study and Location	Type of Impairment	Percent of Employers Who: Have Hired	Would Hire
Pollard (1972) Maine	Blindness	9	16
Baxt (1959)[a] New York	Cerebral Palsy	9	47
Reeder (1965) Los Angeles	Cardiac	11	47
Baxt (1959)[a] New York	Visual Impairments	12	29
Olshansky et al. (1958) Boston	Ex-Mental Patients	13	75
Olshansky et al. (1955) Boston	Cardiac	20	51
Reeder (1959) Minneapolis	Cardiac	22	64
Bolanovich & Rasmussen (1968) National, St. Louis	Mentally Retarded	24	63
Pollard (1972) Maine	Amputees	34	90
Pollard (1972) Maine	Alcoholics	46	92
Pollard (1972) Maine	Ex-Offenders	46	91
Baxt (1959)[a] New York	Epileptics	50	32
Baxt (1959)[a] New York	Cardiac	76	62
Baxt (1959)[a] New York	Orthopedics	81	87
	Mean	= 32.4[b]	= 60.4[b]

[a]Percentages represent a composite raw mean of percentages from seven types of industries unadjusted for variations in number of reporting firms per industry.

[b]Grand means are unadjusted for variations in size of samples of respondents in different studies.

Source: Schroedel and Jacobsen (1978).

Table 5

Percent of Employers Who Would Reject Disabled Applicants:
By Type of Disability and Job Considered
(N=108)

Type of Disability	Clerical	Management	Sales	Production	Mean: All Jobs
All disabilities	42.9	50.7	57.6	62.3	53.4
Diabetes	17.7	18.9	25.7	31.4	23.4
Loss of one leg	18.7	22.7	32.0	49.0	30.6
Peptic ulcer	25.8	38.4	39.8	34.0	34.5
Loss of one arm	38.9	22.7	33.3	59.2	38.5
Back ailment	32.1	39.1	51.0	83.3	51.4
Serious heart attack	38.3	54.6	54.9	69.2	54.2
Epilepsy	43.0	57.6	64.3	72.5	59.3
Deaf	48.6	75.0	86.0	55.0	66.1
Blind	80.4	82.2	93.0	89.2	86.2
Retardation	85.4	95.5	96.2	79.8	89.2

Source: Schroedel and Jacobsen (1977).

Table 6

Mean Scores of Employer Receptivity: By Type of Disability and Work Traits
(N=134)

Work Trait	Type of Disability				
	Psychiatric	Delinquent	Epileptic	Retarded	Amputee
All traits	4.11	3.56	3.36	3.25	2.68
Supervision	4.28	4.34	3.38	2.96	2.66
Work tolerance	3.68	3.13	2.73	3.45	3.22
Reliability	4.19	3.53	3.87	3.49	2.35
Tolerating pressure	3.85	3.82	3.52	3.67	2.68
Trouble adjusting	4.46	3.41	3.18	3.12	3.03
Co-worker relations	4.26	3.57	3.55	3.01	2.47
Absenteeism	4.09	3.14	3.32	3.08	2.38

Scoring Key: 1 = very favorable; 3 = no difference between handicapped and non-handicapped worker; 5 = very unfavorable.

Source: Hartlage, Roland and Taraba (1971).

APPENDIX B

SURVEY COVER LETTER

Dear Respondent:

I am requesting your cooperation in connection with a research study, the purpose is to uncover some of the attitudes which professionally trained persons, such as yourself, may have towards the employment of visually impaired individuals who are qualified to work in your profession.

I am interested in developing the best possible picture of employers' attitudes concerning hiring the visually impaired professional.

Your participation in answering the following questions in terms of your experience and feeling as an employer, would greatly enhance the validity of the research effort. It is important not to omit any item.

Please complete the questionnaire and place it in the stamped return envelope. If you have any comments on this study, feel free to state them on the questionnaire. Each respondent who returns the enclosed post card will receive a digest of the results of the study, with recommendations for employers. Please do not enclose the postcard with your responses, as the responses must remain entirely anonymous.

Thank you for your cooperation.

Respectfully,

Ms. G. Katye Bartley
Doctoral Candidate
United States
International University

APPENDIX C

INSTRUMENT

Please place a checkmark alongside the item under the rating category which best reflects your attitude. Please rate all items. DO NOT sign your name.

	Strongly Agree	Agree	Strongly Disagree	Disagree
1. We employ blind employees.				
2. A blind person can do as well as a sighted person with the same level of education.				
3. Mobility is a serious problem for blind people.				
4. Blind people find it easier to get jobs in my profession than in another profession.				
5. Training for work in my field would not be hindered by blindness.				
6. In hiring a blind person, I would purchase the special equipment needed to assist this professional (up to $4,000).				
7. Employers would rather hire a sighted person.				
8. To get a job in my field would be very difficult for a blind person.				
9. The extra supervision needed for blind employees is too costly for most employers.				
10. Employers will go out of their way to give a blind person a chance.				
11. Sighted co-workers will be uncomfortable around blind people.				

	Strongly Agree	Agree	Strongly Disagree	Disagree
12. Most places do not want to hire blind professionals.				
13. A blind person's qualifications would have to be better than those of a sighted person to get a job in my field.				
14. A sighted person will have to assist a blind person in order to do work in my field.				
15. Most employers are afraid to hire blind people				
16. Employers are prejudiced against blind people.				
17. Generally, if prospective employers know a person is blind, they won't ask them to come in for an interview.				
18. A special effort to hire a blind person would be made in my organization.				
19. A blind person can't really do as good a job in my field as a sighted person.				
20. Special help or consideration would be needed for a blind person, in the office where I work.				
21. A blind person would be most likely fired for making the same mistakes as a sighted person.				
22. Blind employees are less likely to be reprimanded for policy violation.				

	Strongly Agree	Agree	Disagree	Strongly Disagree
23. The performance evaluation system should be made more lenient for blind persons.				
24. Supervisors would not expect as much of a blind person as they should from sighted co-workers.				
25. Most people do not think blind people should be in professional or technical work.				
26. Once a blind person is on the job a few months, they would not have any difficulties getting around in my office.				
27. I would go out of my way to hire a blind person to work in my field.				
28. After the first few weeks, my co-workers probably won't treat a blind person any differently than they would any other colleague.				
29. A blind person would probably receive a lower salary than a sighted person in my field.				
30. A seeing eye dog, if necessary, would be able to remain with the blind person, in my organization.				
31. A blind person can be used as an instructor in my profession.				
32. Extra safety requirements for blind employees are too costly for some employers.				

Please answer the following questions about yourself and the organization you are associated with.

Your Age: _____

Your Sex: _____

Your Education: _____

Marital Status: _____

Size of Organization (Dollar Value): _____

Number of Employees: _____

Geographic Location: _____

APPENDIX D

LETTERS INDICATING PROGRAM SANCTIONS AND ENDORSEMENTS

WASHINGTON UNIVERSITY IN ST LOUIS

School of Engineering and Applied Science
Department of Computer Science

July 18, 1980

G. Katye Bartley
5332 Manzanares Way
San Diego, California 92113

Dear Ms. Bartley:

Enclosed is a copy of "The Selection, Training, and Placement of Blind Computer Programmers". The hypothesis you are investigating was validated 17 years ago, at least with regard to a wide range of careers in computing. Since the time this booklet was prepared, the computer industry has become a well-established outlet for many physically handicapped persons.

The Association for Computing Machinery, in fact, has a special interest group (Special Interest Group on Computing and the Physically Handicapped). This was started by blind programmers and continues to thrive. I am sure that an inquiry to the Association, at 1133 Avenue of the Americas, New York, New York 10036, will produce useful information and names.

Good luck on your research.

Sincerely,

Seymour V. Pollack/cig

Seymour V. Pollack
Assistant Chairman

SVP:cig
Enclosure

Washington University
Campus Box 1045
St. Louis, Missouri 63130
(314) 889-6160

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May 5, 1980

Ms. G. Katye Bartley
5332 Manzanares Way
San Diego, CA 92114

Dear Ms. Bartley:

We do not have any information on "Investigation Into the Computers Versatility of the Blind". You should check with the American Foundation for the Blind, 15 West 16th Street, New York, NY 10011. They may have some information on this in their "Journal of Visual Impairment". Also, the Association for the Education of the Visually Handicapped, 919 Walnut Street, Philadelphia, PA 19107.

We hope this information will be of help to you.

Sincerely,

Carl W. Lappin

CARL W. LAPPIN
DOC Director

CWL:hcb

STATE OF CALIFORNIA—HEALTH AND WELFARE AGENCY

EDMUND G. BROWN JR., Governor

DEPARTMENT OF REHABILITATION
830 K Street Mall
Sacramento, CA 95814
Attn: Library

September 29, 1980

Ms. Georgetta Bartley
5332 Mananares Way
San Deigo, CA 92114

Dear Ms. Bartley:

Some material on attitudes of and toward the blind and physically handicapped are enclosed. I am sorry that I am unable to check material out to persons who are not part of this Department, but believe that I have included sufficient information for you to obtain any material you wish. In some instances I have copied entire sections of a bibliography. At other times I have just sent the title page and bibliographic citations. If you get to Sacramento you are welcome to use our Library.

If I can be of help to you in obtaining any material, or if I can be of any other service please feel free to write me.

Sincerely,

Fredric I. Schlamp

Fredric I. Schlamp, Ph.D.
Research Utilization Unit

Enclosures

STATE OF CALIFORNIA—HEALTH AND WELFARE AGENCY

EDMUND G. BROWN JR., Governor

DEPARTMENT OF REHABILITATION
830 "K" STREET MALL
SACRAMENTO, CALIFORNIA 95814

September 30, 1980

Ms Katye Bartley
5332 Manzanare Way
San Diego, California 92114

Dear Ms Bartley:

I'm very much interested in receiving a copy of your study on the opportunity of persons with visual impairments in the computer field.

I hope the information I provided you have contributed in some small way. If you need any additional information please don't hesitate to contact me again.

Sincerely,

Takao Iwasa, Assistant Chief
Program Evaluation & Statistics Section

TI:es

APPENDIX E

ENCLOSURES

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